Ontario

Advisory Council on Occupational Health and Occupational Safety

Ninth Annual Report
April 1, 1986 to March 31, 1987

88-01971/

Mandate and Objectives

The function of the Advisory Council is and it has power to*:

a) make recommendations to the Minister of Labour relating to programs of the ministry in occupational health and occupational safety; and
b) advise the minister on matters relating to occupational health and occupational safety which may be brought to its attention or be referred to it.

To achieve this Council has set the following objectives:

Primary Objective
To advise the Minister of Labour on all matters relative to occupational health and safety in Ontario.

Secondary Objectives
1. To ensure as far as possible that the policies and programs in occupational health and safety effectively minimize the risks to health and safety in all workplaces in Ontario.
2. To ensure as far as possible that knowledge about occupational health and safety is available to management, labour and the public and that it is understood by them.
3. To assist in promoting and establishing mechanisms involving management and labour to solve problems in occupational health and safety.
4. To ensure as far as possible that there is appropriate manpower training and development for the occupational health and safety field.
5. To review periodically the effectiveness of the policies and programs implemented to achieve objectives 1 to 4. **

*The Occupational Health and Safety Act s 10(7).
**added June, 1980.

Advisory Council on Occupational Health and Occupational Safety

Ninth Annual Report April 1, 1986 to March 31, 1987

400 University Ave.,
11th Floor,
Toronto, Ontario
M7A 1T7

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Ontario

Advisory Council on Occupational Health & Occupational Safety

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7

416/965-2448

June 1, 1987

The Honourable William L. Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Sir:

I am honoured to submit the Ninth Annual Report of the Advisory Council on Occupational Health and Occupational Safety for the fiscal year 1986-87.

Respectfully,

D. R. McCalla
Chairman

Encl.

Advisory Council on Occupational Health and Occupational Safety
Members and Officers 1986-87

R. T. Boldt (1988)
Dow Chemical Canada, Inc.
(retired)
Sarnia

T. Byrne (1988)*
Prov. Bldg. & Constn. Trades Council
Etobicoke

N. Caldbick (1986)
Housewife
Timmins

A. G. Cecutti** (1989)***
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Falconbridge

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University of Toronto
Toronto

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Canadian Union of Public Employees
Scarborough

A. Dong**** (1987)‡
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Toronto

R. Falconer (1988)*
United Steelworkers of America
Toronto

J. Gill (1988)
Canadian Automobile Workers
North York

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(Chairman)
McMaster University
Hamilton

T. H. Meagher (1986)‡‡‡
Ontario Federation of Labour
(retired)
Toronto

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University of Western Ontario
London

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Sault Ste. Marie

H. D. Moyer (1989)
General Motors of Canada
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Southampton

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Limehouse

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Canadian Union of Public Employees
Scarborough

S. O'Flynn**** (1989)*
Ontario Federation of Labour
Don Mills

P. L. Rooney (1986)
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(retired)
Desbarats

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Ellis-Don Ltd.
London

C. J. Tuohy (1988)
(Vice-chairman)
University of Toronto
Toronto

D. Ublansky (1987)
Energy & Chemical Workers Union
London

E. A. Waddell (1986)
Ontario Federation of Labour
Don Mills

J. S. Warner (1986)
Inco Ltd.
Toronto

J. L. West (1988)*
University of Windsor
Windsor

V. Biggar
Executive Co-ordinator

P. L. Chan
Research Officer

A. Koven
Project Officer
(to April 30, 1986)

S. Spencer
Research Officer

N. R. Subramanian
Administrative Assistant

Members' terms expire(d) on October 31 of the year indicated in parentheses except where indicated

* *December 10*
** *Appointed March 25, 1987*
*** *March 24*
**** *Appointed effective December 10, 1986*
‡ *December 9*
‡‡ *January 31*
‡‡‡ *Resigned effective June 26, 1986*

Preface

The introductory section of council's annual report, entitled *Occupational Health and Safety Legislation, Regulations and Practice: Effective ?, Comprehensive?*, this year focuses on the dynamic nature of occupational health and safety issues and highlights observations and questions relating to the adequacy of current and proposed arrangements for occupational health and safety and objective means of evaluating progress.

During the course of the year council engaged in consideration of a range of topics including: the establishment and functioning of joint health and safety committees and the report on council's survey of joint committees that was published in Volume 2 of last year's annual report; the process used by the ministry to develop a number of proposed designated substance regulations and council's role in reviewing that process; council's role generally; and the issue of consultation with respect to occupational health and safety. Further consideration was given during the year to the subject of alternative approaches to the control of hazardous substances and agents in the workplace with a view to developing plans for more actively addressing this issue in the coming year. Following the deliberations of council's Task Force on Biotechnology, it is expected that council will be submitting advice to the minister on biotechnology early in the next fiscal year.

Council submitted four advisory memoranda to the minister which, together with responses received from the minister, appear in the first main section of this annual report. The minister's responses to advisory memoranda that had been submitted by council in previous years and other related follow-up correspondence are included in sections following.

Council's deliberations during the year included formal and informal discussions as well as dialogue with the minister and the deputy minister. Significant among the outcome of its deliberations was the decision to discontinue its practice, which began with the first designated substance regulation in 1981, of reviewing the process used in the development of each of the proposed designated substance regulations prior to its promulgation. The annual report also includes correspondence relating to this and other matters arising.

The final section of the annual report contains administrative matters. The advisory council is governed by section 10 of the *Occupational Health and Safety Act* which has been reproduced in full for easy reference. The council's objectives, terms of reference and meeting dates are also set out in this section along with terms of reference, membership and meeting dates of its task forces.

Appendices at the end of the report contain a variety of statistics including: the number and frequency rate of compensated disabling injuries and days lost for temporary total disability by nature of injury, industry and occupation, and disabling injury claims and days of total temporary disability by

detailed Standard Industrial Classification. Council is grateful to the Workers' Compensation Board of Ontario, Statistical Services for providing most of these statistics this year and to the Health Studies Service of the Ministry of Labour for the data they provided and their assistance. Data were also kindly supplied by the Strategic Policy Unit, Ministry of Labour.

Council remains indebted to the non-council members of council's task forces, who were appointed to particular committees to contribute their expertise, for their invaluable assistance. Council also expresses its gratitude for the support and cooperation it has received from members of labour and management and from private and public associations and agencies, including educational institutions. Without their continuing support council would not be in a position to fulfill its responsibilities.

Mrs. Nora Caldbick and Mr. Ed Waddell, both of whom were members of council from its first year of operation, retired from council on the expiry of their terms after eight years, five months and nine years of service respectively. Council is indebted to them for their dedication and valuable contribution to council and council's task forces and wishes them well in the future. Other members retiring from council on the expiry of their terms were Dr. Stuart Warner, Mr. Terry O'Connor and Mr. Pat Rooney. Council is appreciative of their invaluable assistance and commitment.

Mr. Terry Meagher resigned from council after two years and seven months. Council is grateful to him for his valued contribution and wishes him well in his future endeavours.

Five new members were appointed to council in 1986/87. Council welcomes the appointment of Dr. Albert Cecutti, Mr. Joe Divitt, Dr. Alice Dong, Mr. Sean O'Flynn and Dr. Doug Morrison.

Ms. Anne Koven who served as project officer for council's survey of joint health and safety committees completed her assignment in April of 1986. Her contribution to council's work is gratefully acknowledged.

INTRODUCTION

Occupational Health and Safety Legislation, Regulation and Practice: Effective?, Comprehensive?

Throughout the industrialized world governments have passed increasingly stringent occupational health and safety laws and regulations, and substantial resources have been expended in related educational, compliance and enforcement activities. Considerable improvements have been recorded in some areas.

Ontario has been no exception to this pattern. The promulgation of the *Occupational Health and Safety Act* and industrial, mining and construction regulations in 1980 and the introduction of the concept of internal responsibility were followed by the development of a number of regulations, including designated substance regulations, and, more recently, a regulation setting exposure limits for some 600 substances.

The *Occupational Health and Safety Act* sets out rights and responsibilities for workplace parties, a statutory right of workers to refuse unsafe work and provision for the mandatory establishment of joint health and safety committees. The Act has been described as the legislative backbone to workplace safety that should 'draw its strength, its flexibility, and its resilience from the internal responsibility system',[1] a system focusing on shared responsibility at the workplace for the common objective of worker health and safety. Other provisions and mechanisms, including arrangements for internal and external advisory, auditing and inspection activities, are intended to address anomalies in the workplace and to help ensure compliance with the requirements of the Act and regulations. There are also extensive arrangements for compensation and education which add to the system for occupational health and safety in Ontario.

Among recent developments altering the face of the Ontario scene are the establishment of the Occupational Health and Safety Education Authority, the Industrial Disease Standards Panel and the Workers' Compensation Appeals Tribunal and the formation of the Ontario Workers' Occupational Safety and Health Resources Centre. Other proposed changes include various amendments to the Act, steps for the implementation of a Workplace Hazardous Material Information System (WHMIS) and right-to-know legislation. As well, modifications to the administration of enforcement and facilitating activities are being undertaken.

However, considerable concern remains with respect to occupational health and safety in Ontario. This is due in part to heightened awareness throughout society of the harmful and potentially harmful effects of toxic chemicals and other agents. The fact that health effects are often not apparent for years or even decades after first exposure complicates the issue, compounding fears and making causality difficult to establish. It also contributes to the difficulty and delay in recognizing progress. A decline in the prevalence and incidence of some diseases induced by occupational exposures, asbestosis and silicosis, for example, has been recorded. The actual amount of ill health and the number of deaths caused by harmful agents in the workplace remains an important unknown. On the safety side, where causality is generally much clearer and where statistics have been collected for many years, the results of the past decades' safety efforts are discouraging.

Society's concerns have been further increased by the events at Seveso, Love Canal, Three Mile Island, Bhopal and Chernobyl, the high profile issue of disposal of toxic industrial wastes, and the much publicized reluctance of some companies to deal decisively with known hazards coupled with instances of belated government intervention. It may well be that the concerns of society and of workers have increased much faster than the readiness or ability of governments to deal with these issues in an acceptable manner.

The increased concern over accident rates and over health risks associated with toxic agents has intensified debate concerning the adequacy of current arrangements for occupational health and safety in Ontario. Basic questions are:

1. Are the current arrangements, plus the proposed changes, adequate to produce a real and measurable improvement? If not, what should be done and in what areas?
2. What criteria should be established to evaluate progress?

In its Advisory Memorandum 86-III council has pointed out that the time is ripe for public debate on the premises underlying the Act and its enforcement and for considering alternative structures. In addition to the reasons outlined above, and in Advisory Memorandum 86-III, council reiterates a point made in its first annual report in 1979 that '. . . even in industries with high risks, some companies can consistently outperform their competitors. They do control accidents. This suggests that there is considerable room for improvement.'[2]

This observation suggests that more intensive research into the chains of events that lead to accidents and 'near misses' should provide important insight to be applied to the prevention of these events. It also suggests that a concerted effort should be made to make all companies within a particular industry as safe as the best while striving to improve the performance of the leaders. The events of the past few years make it clear that this is not a simple task. The changes that are required in the attitudes and behaviour of organizations and individuals will be difficult to achieve, as will the maintenance of a high level of attention to health and safety efforts over a prolonged period.

Council's first annual report also expressed the view that attitudes are shaped in part by a number of elements of a strategy to enable 'those responsible for the administration and carrying out of work, to achieve the goal of safe and healthful performance, within a self-regulatory framework, with an effective governmental inspectorate.'[3] The following eight elements were outlined:

- Consultation at the workplace.
- Accountability: education and supervision.
- Information, research and evaluation.
- Consultative services.
- Inspection services.
- Penalties and incentives.
- Occupational health programs.
- Mass communications.

Although it is hard to take issue with these items, it is relevant to ask whether the relative balance of emphasis is appropriate and whether there is a comprehensive strategic plan to ensure that no serious gaps exist. It would seem reasonable to suppose, for example, that there is a relationship between the availability of information plus the level of awareness of both management and labour and the need for detailed regulations and aggressive enforcement. Similarly, there is a plausible relationship between the effective functioning of joint health and safety committees and enforcement. It is reasonable to ask, however, whether or not the internal responsibility system, as presently defined, can realistically meet society's expectations.

Proposed ministry initiatives appear designed to alter the current emphasis; nevertheless, there continues to be a pressing need for openness and the involvement of the affected parties and to capture the knowledge and concerns of workers in what might be termed a 'bottom-up' approach to occupational health and safety. The case for such involvement has recently been stated by Edward Wenk, Jr., a former science and technology adviser to the U.S. Congress.

- 'The reality of conflict must be faced squarely . . .
- All parties have rights, and all parties have responsibilities. In a free and pluralistic society, perceptions of social and economic effects will vary enormously among different parties in the decision chain. All parties should have ready access to an effective information system that translates implications for the public as well as vested interests.
- While there are ethical as well as substantive grounds for involving affected parties, that participation early on could mitigate conflict between those imposing and those exposed to risk. If excluded from the acts of choice, people may be reluctant to transfer responsibility for their exposure to risk to those whose guiding values may be foreign and whose self-interests they do not trust.'[4]

It is necessary to look beyond the legislative record for criteria that can be used to judge the level of effectiveness of health and safety interventions, whether they be regulatory, educational or enforcement. Statements concerning the right of persons to be unharmed by the environment in which they work appear to imply that the goal is a zero disease and accident rate, which is, in practice, unattainable and not realistically expected in other areas of life's activities. The true occupational health and safety objective must, for the time being, be to strive for as large and rapid a reduction of occupational injuries, diseases and deaths as is feasible. At the same time, without defined criteria and appropriate data collection it will not be possible to provide an objective evaluation of progress.

In Advisory Memorandum 85-IV council recommended that each workplace in the province should develop a workplace control program. Specific health and safety goals for particular workplaces could well be made a part of such programs and be used as one measure of their adequacy. On a larger scale, trade associations, labour groups, etc. might be asked to develop criteria and measures for particular industries and to recommend the data that should be collected.

There is also the question of the resources that government devotes to occupational health and safety. The level of governmental spending on

occupational health and safety is usually determined by the political process; however, the distribution of these expenditures among various branches, agencies and groups may, at times, be as much a reflection of history as of current needs.

As part of a strategic plan, when new acts, regulations or programs are planned, sufficient resources for their effective administration should be allocated, and, as the role played by the ministry evolves and plans are implemented, the allocation of resources should be reviewed.

Finally, the dynamic nature and the changing relations between a complex organization such as the Ministry of Labour and its clients should be recognized. As Larry Greiner has pointed out:

> 'Companies therefore experience the irony of seeing a major solution in one time period become a major problem at a later date ...
>
> 'Managers often fail to realize that organizational solutions create problems for the future ... Historical actions are very much determinants of what happens to the company at a much later date.
>
> 'An awareness of this effect should help managers to evaluate company problems with greater historical understanding instead of "pinning the blame" on a current development. Better yet, managers should be in a position to predict future problems, and thereby to prepare solutions and coping strategies before a revolution gets out of hand.'

Although these comments were made in a business context there is reason to believe that they apply to other organizations, including government ministries. If this perception is correct, it adds to the case for ongoing discussions of the fundamental arrangements for occupational health and safety with the 'stakeholders'. It is unrealistic to surmise that there is one ideal arrangement into which all the affected parties will buy and which will then be stable for an extended period of time.

References

1. From Minister's remarks to IAPA/OFL at General Safety Dinner Meeting, Windsor, Ontario, January 27, 1986.
2. *Advisory Council on Occupational Health and Occupational Safety, First Annual Report*, April 1, 1978 to March 31, 1979, p. 15.
3. *Ibid* p.17.
4. In Wenk, Edward Jr., *Tradeoffs: Imperatives of Choice in a High-Tech World*, The John Hopkins University Press, 1986, p.148.
5. Greiner, Larry E., *Evolution and revolution as organizations grow*, Harvard Business Review, July-Aug. 1972, p.37-46.

COUNCIL'S ADVISORY MEMORANDA

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

March 4, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health and
Occupational Safety
15th Floor
400 University Avenue
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I am pleased to forward the proposed Ethylene Oxide Regulation for Council's review and comment.

I have reviewed with my officials, the question of whether the time weighted average exposure limit of 1 ppm considered at the open review meeting held in September 1985 could be lowered in response to the concerns expressed by labour representatives. My officials and I concur that the risk to health is reduced as the amount of worker exposure to ethylene oxide is reduced.

I requested my officials to consider whether a prosecution of a lower exposure limit could be supported by existing measurement and analytical methods. Any exposure limit stipulated by law must be enforceable to be credible. My officials advise that with the current measurement and analytical method, the lowest sustainable exposure limit is 1 ppm. I have asked my officials to research and investigate other methods. As a result, I have decided not to include a lower exposure value at this time. Of course employers will, in any event, be required to reduce exposure to the lowest practical level.

I understand that technology is developing rapidly in this field, so I have asked my officals to schedule a review of the ethylene oxide regulation in three years from the date the regulation takes effect, to consider whether a lower exposure limit could be sustainable in law and to implement the lowest supportable limit at that time.

As you will note, the proposed regulation has been revised following the open review meeting. The significant change arises from the Ministry's consideration of the Advisory Council's advice on medical surveillance. Ministry officials have considered the nature of the health effects from exposure to ethylene oxide and the benefits to be derived

from a mandatory medical surveillance program. Mandatory medical surveillance conducted on a routine and periodic basis will provide no useful information to the worker or the employer with regard to any of the health effects which may derive from exposure to ethylene oxide at levels mandated under this regulation.

In keeping with Council's earlier advice that the parties be informed of changes made to the regulation following the public meeting, my officials will send a notice to interested parties explaining the change made to the regulation, and enclosing a copy of the proposed regulation along with a summary of comments received following the public meeting.

I look forward to receiving Council's advice on this proposed regulation in the near future.

Yours sincerely,

WILLIAM WRYE
Minister

Ontario

Advisory Council on Occupational Health & Occupational Safety

Conseil consultatif de la santé et de la sécurité au travail

INTERNATIONAL YOUTH YEAR 1985
ANNÉE INTERNATIONALE DE LA JEUNESSE 1985

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

June 30, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
TORONTO, Ontario
M7A 1T7

Dear Mr. Wrye:

On behalf of the advisory council, I am enclosing Advisory Memorandum 86-I, A Review by the Advisory Council of the Process Used to Develop a Standard for Ethylene Oxide and Council's Evaluation of the Criteria Used to Assess the Hazard of Ethylene Oxide Exposure in the Workplace.

Council has reviewed the process of developing the ethylene oxide regulation in light of the policies and principles set out in Advisory Memorandum 78-II.

Council hopes that the recommendations and suggestions contained in this document will prove useful to you.

Yours truly,

D. R. McCalla
Chairman

Encl.

cc to: T. E. Armstrong
Dr. A. E. Robinson
B. Goodman

Advisory Memorandum 86-I to the Minister of Labour June 30, 1986

A Review by the Advisory Council of the Process Used to Develop a Standard for Ethylene Oxide and Council's Evaluation of the Criteria Used to Assess the Hazard of Ethylene Oxide Exposure in the Workplace

The review of the standard setting process leading to the development of the ethylene oxide regulation focused on three aspects of the process: 1) the analysis of the background documentation (i.e. whether the ministry assembled, reviewed and analysed the available evidence in a reasonable fashion and whether the conclusions reached were compatible with the evidence), 2) the process (i.e. whether the public was provided with sufficient time, information and opportunity to comment on and participate in the development and content of the regulation), and 3) the application (i.e. whether the regulation and codes are internally consistent and whether the intent of the ministry is expressed in a clear and unambiguous fashion).

As in the past, the council has conducted the review considering the list of basic principles and procedures suggested in council's Advisory Memorandum 78-II.

BACKGROUND

A Notice of Intention to Designate Ethylene Oxide was published in the Ontario Gazette in November 1982. In response to the call for comments, 25 briefs were submitted, 10 from union and other labour related groups.

Following discussions with representatives of the Ontario Hospital Association (OHA) and the Canadian Union of Public Employees (CUPE), the ministry established a task force to survey a representative sample of hospitals to estimate the cost of compliance with an ethylene oxide regulation in the health care sector. The objective was to estimate the cost of reducing exposure to meet a 1 ppm and a 0.1 ppm time-weighted average exposure limit with a maximum of 10 ppm and 1ppm respectively.

Following a review of the task force report, the Legislative Review Committee recommended the publication of a proposed regulation. Of the 37 briefs received in response to the proposed regulation, 36 were from management or other organizations. There was one brief from the Ontario Nurses' Association.

In September 1985 a revised proposed regulation was presented at a public meeting. At the same time, representatives of labour held a press conference publicly announcing boycotting of the ministry's standard setting process.

During the 21-day period allowed for comments on the revised regulation, nine briefs were received from management and other organizations.

A further revised proposed regulation was submitted to council in March 1986. At the same time, a notice was sent to interested parties informing them of the major change made, to which was attached a copy of the proposed regulation submitted to council and a summary of the comments that were received subsequent to the September public meeting.

Following a preliminary review of the proposed regulation and the background material, the task force met with ministry officials to clarify several points. The issues and a summary of the responses are reproduced as Appendices II and III respectively.

1. ANALYSIS OF BACKGROUND MATERIAL

From council's review, it appears that the regulation is based on a thorough review of the information available on the health effects, use and exposure patterns in Ontario. Council understands that the development of the regulation occurred over a period of two to four years and notes the need to keep the information up-to-date.

The evidence indicates that ethylene oxide is a potential human carcinogen and reproductive hazard; however, the data are inadequate to perform a quantitative risk assessment. Council recognizes the dilemma faced by the minister in attempting to determine an exposure level. The approach used by the ministry in such situations has been to include a requirement for employers to reduce the exposure to the lowest practical levels. Although council has, in the past, questioned the ability of the ministry to implement this provision with its present interpretation, the approach is consistent with council's advice.[1] The limitations of the risk assessment performed by ministry personnel were understood and enunciated in the background information provided to council. Given insufficient information it seems reasonable to use the assessment to estimate a value that is not inconsistent with the available health effects information and that is as low as is economically and technically feasible.

Among the factors considered when determining an exposure limit for ethylene oxide, the technical ability to accurately measure levels below 1 ppm appeared to be the limiting and deciding factor. Council understands that for the limit to be enforceable it has to be sustainable in law. However, there appears to be doubt in the minds of some respondents about the conclusion that the techniques currently available are unable to accurately measure levels below 1 ppm and, hence, they question the premise that a lower level would not be sustainable in law. It is understood that this is a rapidly developing area of science, and council was encouraged by the minister's undertaking to review the situation in three years and to consider whether a lower exposure limit could be sustainable in law and to implement the lowest supportable limit at that time. However, council questions the need to wait for three years if new health effects data or new or improved techniques that can accurately measure 0.1 ppm become available shortly after promulgating the regulation.

ACOHOS RECOMMENDATION 86-1

that the minister inform the public that he will review the limit or when new health effects data or more sensitive analytical techniques are

available, or in three years, whichever is sooner.

When there are difficulties in determining or measuring exposure levels, a control-by-procedure approach is often advocated. This issue was discussed with ministry personnel (see Question 9, Appendix III), and it was explained that control by procedure is impractical for industrial establishments because of the variety of different processes used.

As hospitals are the main area of concern for ethylene oxide exposure and it is indicated that essentially all hospital sterilizers use the same process, it is suggested that the minister advocate strategies that will control fugitive emissions of ethylene oxide into the workplace. These strategies should focus on engineering controls at the source rather than on controlling the TWA exposure of workers in the area.

ACOHOS RECOMMENDATION 86-2

that the minister advocate or require under legislation the most effective and efficient means of protecting the health and safety of workers as possible under the conditions of the workplace. Such control-by-procedure approach would have to achieve and better the protection offered a worker by the TWAEL and STEL in the regulation.

This approach could be viewed as analogous to and as supplementing the ALARA principle, and it is particularly important where there is difficulty in accurately measuring levels in the range of the exposure limits in the regulation.

Council understands that an exposure level that cannot be accurately measured cannot be enforced as a legal limit, and has concern about the enforceability of the requirement to reduce levels to the lowest practical level when this level is below that which is deemed to be sustainable in law.

With respect to the background information on use and exposure patterns, council inquired about the use of ethylene oxide as a fumigant. Ministry personnel reported that the use of ethylene oxide as a fumigant is not widespread and that it is licensed under the *Pesticides Act*, which is administered by the Ministry of the Environment. It appears that workers could be covered under the *Occupational Health and Safety Act* (see Question 1, Appendix III).

With respect to keeping up with data as it becomes available, council notes that the recently published data of Generoso[7] lends support to the decision to include a STEL in the regulation.

2. **PROCESS**

The significant steps in the process of developing the regulation are summarized in Appendix I. Council notes that the process differed slightly from that of substances designated in the past. Differences included:

1) the formation of a task force to review the economic and technical feasibility of implementing a designated substance regulation in hospitals. The task force received significant input from management and labour

representing two of the affected constituencies, and the survey of 20 hospitals was conducted by a group that included management and labour representatives. Council commends the ministry on this collaborative approach to gathering information early in the process and encourages the minister to continue such collaboration by discussing the findings of such surveys with the parties participating in the surveys before the final decisions are made.

2) Since late 1984 there has been boycotting of the ministry's standard setting process by labour representatives and the unfortunate situation in which labour input on the proposed regulation has been lacking. This matter was discussed with ministry officials, and it appears that an effort was made to consider the concerns of labour that were expressed early in the process prior to the boycott.

Council has concern that an open consultative process is only receiving input from parties representing one side.

The purpose of the open consultative process is to gain input from affected parties so that the regulation will be fair, reasonable and acceptable. For this reason, and as new data become available, certain changes to the proposed regulations are to be expected. Council has, in the past, made recommendations regarding this issue. ACOHOS Recommendation 84-5 states: 'that if substantive changes are to be made at a late stage, the minister ensure that all interested parties be given an opportunity to comment.'

In the case of the development of the ethylene oxide regulation, a number of substantive changes were made at different stages during the process:

1) The addition of a provision for an emergency program. Although this change was made prior to the presentation of the revised proposed regulation at the public meeting and parties were alerted to the change (in the notice for the public meeting), this is not only a major change but also represents a major departure from the approach taken in previous designated substance regulations. In their comments, the affected parties felt that '... such a departure from past practice deserves more than a 21-day comment period.'

   This issue was discussed at the meeting between council's task force and ministry personnel. (See Questions 5 and 10, Appendix III.) It appears that the section of the proposed regulation introducing a provision for an emergency program was developed to address a specific situation – the storage and distribution of ethylene oxide cylinders – and its application is limited to two companies. Both companies commented that they recognized the need for, and have already implemented, comprehensive emergency programs, but both questioned whether the designated substance regulation is the appropriate vehicle for requiring such programs. It is unclear whether or not there is any concern among the workers involved;

2) the addition of a TWAEL that is calculated for an eight-hour day and a 40-hour week;

3) the deletion of provision for mandatory medical surveillance; and

4) the addition of a section making provision for medical examinations.

The latter three major changes were made after the consultative process and prior to the regulation coming to council for review. Changes similar to the latter two were made to the proposed arsenic regulation after it had been submitted to council. Council noted that, in the case of the arsenic regulation, the changes presented it with a serious dilemma.[4] While one of the changes appeared to be consistent, at least in part, with council's advice on Classification of Health Surveillance, Health Screening and Biological Monitoring Procedures in Workplace Biomedical Surveillance Programs"[5] (which, it should be noted, was not in the public domain or available to interested parties at that time), the manner of making the change was contrary to the principles of an open consultative process.

The proposed new section was not discussed with the affected parties, and council will comment on the content of this new section in the next part of this advisory memorandum. However, with respect to the process, council reiterates its position that:

1) the initial draft should come as close as possible to the final regulation; and

2) if substantive changes are to be made at a late stage, the minister should ensure that all interested parties be given an opportunity to comment.

In the meeting with ministry officials a question was asked about the process of recording the comments made at the public meeting. Ministry personnel explained that oral comments and questions are noted but not formally recorded. (See Question 6, Appendix III).

ACOHOS RECOMMENDATION 86-3

that the minister ensure that the parties at the public meeting be informed that their comments will be noted and considered, and, if they wish their comments to become part of the formal record, which can be reviewed by the public (and council), they should submit a written brief within the comment period provided.

3. APPLICATION

As the format of the regulation is relatively standard for all designated substances, some of the technical-legal issues that cause concern have been dealt with in the past. However, council notes that an evolution in this standard format has addressed or explained some of the issues.

With respect to the proposed section 3 and the application of the regulation, two concerns were discussed with ministry personnel (see Questions 1 and 2, Appendix III):

1) whether or not the regulation applies to workers licensed under the *Pesticides Act* to use ethylene oxide as a fumigant. It appeared from the discussion that there are provisions for protecting the workers and that the *Occupational Health and Safety Act* could apply. However, there are jurisdictional problems surrounding the most common use of ethylene

oxide in fumigation, i.e. in aeroplanes that are under federal jurisdiction; and

2) in proposed section 3(2) the employer is responsible for protecting the health of every worker at the workplace, even if they are not employed by him. Concern was expressed about the protection of contract maintenance workers who have to work in several different areas in different workplaces where the exposures to ethylene oxide may be high. From the discussion with ministry personnel, it appears that special arrangements have been made between the employers and the major contractors that will provide protection for the workers according to a control-by-procedure approach, i.e. workers will be expected to wear respirators in areas where there is likely to be exposure to ethylene oxide. It is understood that personal monitoring and the application of time-weighted average exposure limits would be impractical. Council is concerned about whether such arrangements will automatically occur with other maintenance contractors.

ACOHOS RECOMMENDATION 86-4

that the minister take steps to ensure that employers are alerted to their responsibility to protect the health of all workers at their workplace, whether employed by those employers or not, with special emphasis on exposures to certain toxic substances whose effects are cumulative.

It would seem appropriate to include this information in the explanatory material to accompany the regulation.

In the meeting with ministry personnel the rationale for including an emergency program was questioned. Council agrees that there is a need for emergency programs, but has reservations about the program proposed.

Emergency programs usually outline a series of procedures to be followed in the case of an accidental leak or spill of an acutely toxic or highly reactive substance. Such programs are usually linked to safety precautions designed to prevent emergencies, to first aid programs and to procedures for immediate remedial actions.

Although, in the past, emergency programs have not been included as a formal requirement of the designated substance regulations, safety practices and emergency provisions have been considered under work practices that are part of control programs. However, if it were considered that a worker's health was unlikely to be affected, the control program requirement would not apply. Council does not have information about the extent to which emergency measures are now being included as part of designated substance regulation control programs. Council is concerned that the emergency program in the proposed section 8 only applies where the substance is contained in closed containers and only in the case of an emergency but not to workplaces that store and use the substances and where it has been considered that the worker's health is not likely to be affected (according to proposed section 6, the assessment), i.e. where no control program would be required.

It is unclear to council whether the inclusion of the proposed section 8 (the emergency control program) in the designated substance regulation for ethylene oxide means that the need for a specific emergency program is peculiar to ethylene oxide or whether this is a precedent for future designated substance regulations. Furthermore, it is unclear to council whether or not this requirement would overlap requirements under the *Transportation of Dangerous Goods Act*.

In summary, council recognizes the need for emergency programs; however, it is concerned about the limited nature and application of this specific requirement and questions whether the designated substance regulations in their current form are the appropriate vehicles for requiring emergency programs.

This concern is expressed by council because the section was added late in the development process to address a specific situation and it is unclear to council the degree to which consultation occurred on this issue. The two companies commenting on the section (i.e. the two companies reported to be affected by the section) expressed concern at the process of adding a new provision and noted that the period of 21 days was inadequate to prepare a thorough review of the implications of a totally new concept.

ACOHOS RECOMMENDATION 86-5

> that the minister reconsider the appropriateness of including the proposed specific provisions for an emergency program in the context of this designated substance regulation; and
>
> if the decision is made to include such requirements, that the minister ensure that the requirements are comprehensive and that there is adequate opportunity for public discussion.

As noted earlier, council is also very concerned about the addition of proposed section 15 (provision for medical examinations) without public consultation. The addition of section 15 to the arsenic regulation also occurred without public consultation, without the knowledge of the affected parties, and late in council's review. At that time, council pointed out that the objectives of the section were inconsistent with those quoted in the codes, i.e. for the evaluation and protection of the worker's health and to provide education on the health effects.[6] Council recommended certain changes to reflect what it understood to be the purpose of the section, i.e. a more flexible approach toward medical surveillance. However, when the final regulation was filed, the code had been removed, and it was clear that the objective of the medical examination was to determine a worker's fitness to work with the substance.

Council notes that the reason for deleting mandatory medical surveillance from the control program is that, at this time, there are no clinical tests that can detect exposure or health effects directly attributable to ethylene oxide exposure at a time when intervention would help protect the worker from further effects or from the progression of the effects that are detected. This is consistent with the principles contained in council's advice on Classification of Health Surveillance, Health Screening and Biological Monitoring

Procedures in Workplace Biomedical Surveillance Programs in Advisory Memorandum 85-II.

From the discussion with ministry personnel, it appeared that the purpose of the proposed section 15 was to make provision for medical examinationsin cases of emergency when a worker is exposed to a high dose of ethylene oxide but is not disabled or does not require medical assistance. It appears to council that these provisions are intended to deal with accidents and not industrial diseases and that there is already legislation in the form of the *Workers' Compensation Act* to deal with such situations.

Requiring workers to undergo medical examinations is a very sensitive issue where considerable jurisprudence and legislation exists. Systems currently in place deal with these situations as they arise in the workplace. It would appear to council that there was no consultation on this section, no previous gap to be filled by the provision and no obvious benefit with respect to protecting the health of the worker. Therefore, this section should not be included in the regulation.

ACOHOS RECOMMENDATION 86-6

that the proposed section 15 dealing with medical examination not be included in the regulation.

If, as a result of the comments received on the regulations presently in the public domain, a need for such a provision is identified, the need should be carefully reviewed so that any provision drafted would be:

1) for the purpose of protecting the health of the worker;
2) not duplicate or be in conflict with the existing system or legislation;
3) carefully worded so that the purpose is clearly stated and the potential for misrepresentation and abuse minimized;
4) discussed with affected parties and available for public review and comment.

SUMMARY

Council has, in the past five years, reviewed the process used by the ministry to develop the various designated substance regulations and has noted a number of changes over time. The establishment, early in the process, of a group with significant input from labour and management to survey hospitals to determine the economic and technical feasibility of implementing a regulation at several different exposure limits is considered a highly desirable approach.

Council also commends the practice of notifying affected parties of the changes, the reasons for them and the proposed timetable at various stages through the process. As noted earlier, the purpose of the consultative process is to develop a regulation that is reasonable, feasible and acceptable to the affected parties. Ideally, collaborative work will help the development of draft regulations that will only require minor changes, and, ideally, the changes will become less substantive as the process progresses.

Late in the process of developing the ethylene oxide regulation, two new sections were added and one major component was deleted. Both new sections introduced concepts that are new to the designated substance regulations. One section was explained at the public meeting, and comments were accepted for a 21-day period. The other sections were not introduced until after the consultation period was complete.

Council has reviewed these changes and has made several recommendations, including restating, in this context, the recommendation that, if substantive changes are made, the development process should provide the affected parties with the opportunity to thoroughly review and comment on the new provisions.

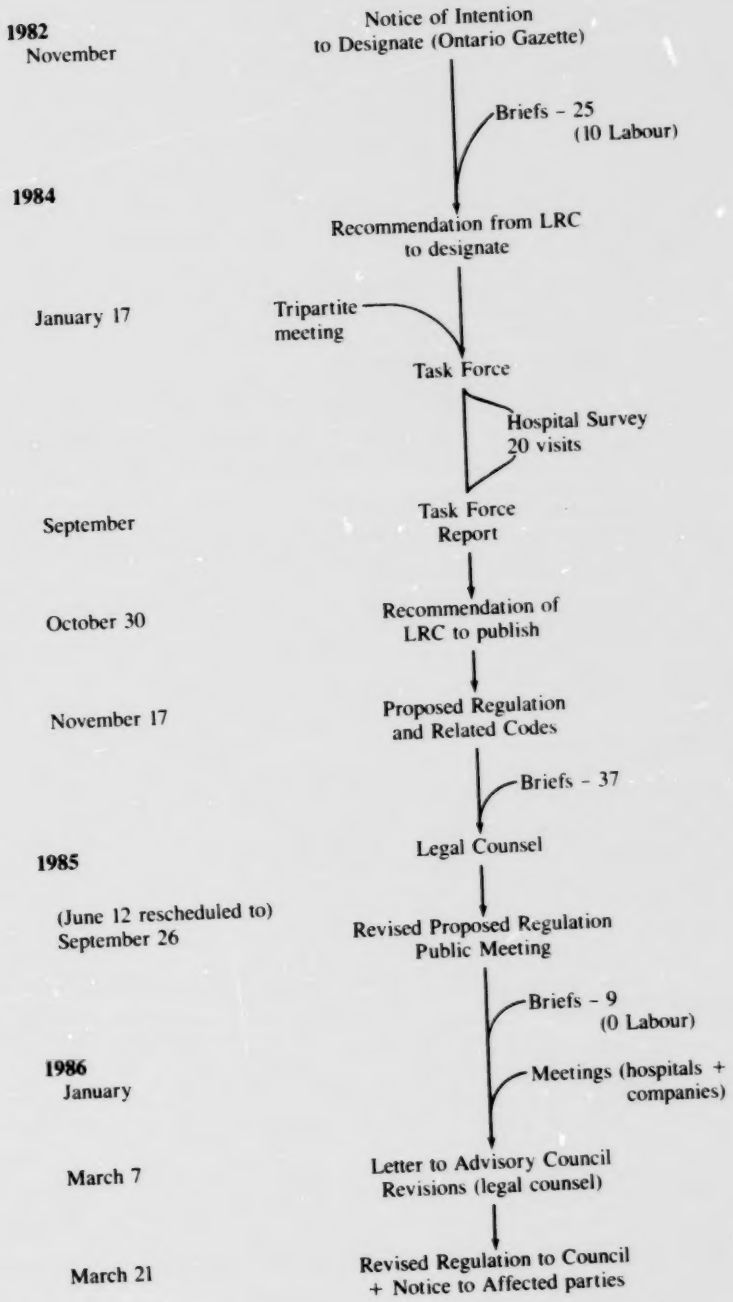
Council wishes to emphasize the importance of consultation with affected parties, especially when new concepts are incorporated into regulations. If the urgency to proceed with the regulation is considered overriding, this should not preclude the possibility of public consultation on specific provisions with a view to their possible amendment.

References

1. Advisory Memorandum 83-IV: New Chemical and Biological Agents in the Workplace: Identification and Control of Carcinogens and Potential Carcinogens. *Advisory Council on Occupational Health and Occupational Safety, Sixth Annual Report, April 1, 1983 to March 31, 1984.*
2. Generoso, W., cited in *Science* 231:448 (1986).
3. Advisory Memorandum 84-I: A Review by the Advisory Council of the Process Used to Develop a Standard for Benzene and Council's Evaluation of the Criteria Utilized to Assess the Hazard of Benzene Exposure in the Workplace. *Advisory Council on Occupational Health and Occupational Safety, Seventh Annual Report, April 1, 1984 to March 31, 1985.*
4. Advisory Memorandum 85-V: A Review by the Advisory Council of the Process Used to Develop a Standard for Arsenic and Council's Evaluation of the Criteria Utilized to Assess the Hazard of Arsenic Exposure in the Workplace. *Advisory Council on Occupational Health and Occupational Safety, Eighth Annual Report, April 1, 1985 to March 31, 1986.*
5. Advisory Memorandum 85-II: Classification of Health Surveillance, Health Screening and Biological Monitoring Procedures in Workplace Biomedical Surveillance Programs. *Ibid.*
6. Advisory Memorandum 85-V: A Review by the Advisory Council of the Process Used to Develop a Standard for Arsenic and Council's Evaluation of the Criteria Utilized to Assess the Hazard Exposure in the Workplace. *Ibid.*

APPENDIX I

PROCESS FOR THE DEVELOPMENT OF THE PROPOSED REGULATION RESPECTING ETHYLENE OXIDE



APPENDIX II

Agenda for Discussion at Meeting with Ministry Personnel
May 26, 1986 at 1:00 p.m.

Questions

1. Is there any information on the number of workers involved in fumigation procedures in Ontario and the extent of their exposure?

   Does the Ministry of the Environment have information or control over this use of ethylene oxide?

2. What sort of protection does section 3(2) provide for contract workers who may experience several high exposure situations per day in different workplaces?

   How and by whom would this be monitored?

3. It was indicated in the background material that the task force performing the survey of hospitals was tripartite. Was the 'Task Force Report on Survey of Ethylene Oxide Use in Ontario Hospitals' produced by, or with input from, the tripartite group that performed the survey?

4. Council notes that at the time of the public meeting, labour was boycotting the ministry's standard setting process. Was there input from labour on the changes that were introduced at, and subsequent to, the public meeting?

5. Do interested parties know of the major changes to be introduced at the public meeting? How do those not attending the public meeting know of the changes and the comment period on the changes?

6. Is there a system of recording the oral comments made at the public meeting, and do these comments receive the same degree of consideration as written submissions?

7. What is the rationale for having a TWA Limit calculated for an eight-hour working day *and* a 40-hour working week? How would both TWAs be applied?

8. Was the technical feasibility of accurately measuring levels below 1 ppm the only factor in deciding that the TWA level should not be set below 1 ppm? If not, how significant were the other factors? (If so, what level would have been set based only on the health effects data?*) (How much weight was put on the economic data gathered from the survey?)

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* Occupational Health and Safety Division, *Report to the Advisory Council on the Designation of Ethylene Oxide in Ontario*, Vol.1, p.50 - 'the task force concluded that a 0.1 ppm limit for ethylene oxide was impractical at *that* time as there was no analytical method available which could be reliably used to determine compliance with a Time-Weighted Average Exposure Limit of 0.1 ppm.'

9. Was a control-by-procedure standard considered where the procedure would require reduction of emissions at the source? If so, why was this approach rejected?

10. What was the rationale for including an emergency program in this designated substance regulation, and why was it limited to precautions to prevent inhalation of ethylene oxide? Is consideration given to flammability? Will consideration be given to including provisions for protecting against other emergencies in other DSRs – past and future?

11. The background information indicates that as DSRs take precedence over section 20 orders, section 20 orders could not be issued in instances where exposures were deemed excessive in industries exempt from a DSR. Do DSRs take precedence over section 29 orders?

12. What was the rationale for deleting mandatory medical surveillance?

APPENDIX III

Summary of the Responses to Questions Raised at the May 26, 1986 Meeting with Ministry Officials

Question 1

It was explained that the ministry obtained information from the Ministry of the Environment, which licenses exterminators and fumigators in Ontario. As of May 1985 there were two classes of exterminators licensed to use ethylene oxide (ETO):

Class 6 (8 people)	– are endorsed for ethylene oxide use in vault fumigation.
Class 1 (170 people)	– are licensed to use ETO as well as other substances in other structures.

It appeared as though the *Occupational Health and Safety Act* could apply to these workers; however, ETO is only used to fumigate aeroplanes (about 10 per year) that are on federal property. During the fumigation, workers wear personal protective equipment. Once they have opened the valve on the ethylene oxide cylinder they leave and close the plane. After the required period they open the plane, wearing respirators, and monitor the residual levels until the plane is considered safe for boarding.

With respect to class 6 fumigation, it was explained that the only vault for fumigation in Ontario, apart from the spice industry, is at the Royal Ontario Museum. However, it appears that the vault, which has a dedicated ventilation system, has never been used for ethylene oxide fumigation.

Question 2

Ministry officials responded that, under section 3(2), the employer has to take all reasonable precautions to protect the health of the workers. In the guidance notes this is described as at least to the level of protection set out in the regulation. For ETO this would be TWA of 1 ppm and STEL of 10 ppm ETO and if, under section 5, this is not feasible, respirators have to be worn.

In the case of ETO, a brief was received from the major maintenance contractor expressing concern at section 3(2). The concern was that most of the maintenance work is performed in mechanical rooms behind the ETO sterilizers. This area is known to have potential for high (1ppm TWA) concentrations of ETO and, under normal circumstances, is rarely entered by workers. However, not only do the contract workers have to work in such areas, they may have to work in several such areas in one day, often under emergency situations when the concentrations could be much higher.

Ministry officials explained that they had met with representatives from the contracting company and with the Ontario Hospital Association (OHA) to discuss the best means of protecting such service workers. It was agreed that the contractor would be responsible for the medical surveillance of the workers (that agreement was made at a time when medical surveillance was

still a requirement under the regulation). Arrangements were made with the OHA that, where feasible, hospitals, which, at the time, did not have adequate ventilation would not use the sterilizers during or immediately prior to such maintenance so that the levels of ETO could decrease. However, in the realization that this would not always be possible, the contractor agreed to provide respirators that would be fit-tested for individual workers. It was estimated that in two years all hospitals should have well ventilated mechanical rooms such that TWA exposures of workers in the area would be less than 1 ppm.

In summary it was explained that, because of the nature of maintenance work, personal monitoring and record keeping would be very difficult. A worker could be involved in maintenance work at several hospitals in one day, so the aim is to reduce the TWA in the area below 1 ppm and, before that is achieved, the workers will be required to wear respirators.

In response to a question from the task force regarding the exemption of construction companies, it was explained that if workers of such companies were doing contract maintenance work in an industrial establishment, it would be the responsibility of the employer in the industrial establishment to ensure that the worker was protected while working in an area where he or she may be exposed to ETO.

Question 3

Ministry officials explained that a task force performed the survey of the hospitals and that the report was produced with input from the task force. The OHA and CUPE participated in the choice of the hospitals. Observers from OHA and CUPE accompanied the group doing the survey and reviewed the draft report, and their comments were incorporated into the final report. The conclusion of the report was added after the review; however, it was based on the results included in the survey.

There was a discussion about who had received a copy of the final report. It was unclear whether the OHA and CUPE representatives participating in the survey had seen the final report. Ministry officials agreed to clarify this issue (see Appendix IV).

It was explained that copies of the individual monitoring results had been sent to the hospital administrator and the joint health and safety committee of each of the hospitals that had participated in the survey. Task force members pointed out that personnel at many of the hospitals could not interpret the results and had sought clarification from OHA or CUPE.

Ministry officials noted that the hospitals had been provided with standard air monitoring reports. Usually, these reports are delivered and explained by inspectors. It was suggested that, in future, consideration be given to the presentation and explanation of the data that are mailed out.

There was a discussion about the accuracy and presentation of the data presented in Appendix F of the background information provided to Council. Ministry officials explained that the reason levels quoted were well below the detection limit of the method used was that the levels were time weighted averages calculated from single samples. However, it was pointed

out that the table in question was a compilation of data collected for other purposes and that the data were not considered in the decision making process (see Appendix IV).

Question 4

Ministry officials reported that prior to the public meeting and following the publication of the proposed regulation, the ministry received a brief from the Ontario Nurses' Association (ONA). The staff of the Program Development Unit had met with Ms. Carr of ONA to discuss the association's position. In developing the regulation and the subsequent review of the regulation, consideration was given to the briefs from CUPE and ONA, which were received in response to the Notice to Designate and to the 'yellow book' (Exposure Criteria – proposed for discussion) and the ministry was aware therefore of and had considered labour's views on the regulation of ETO.

Question 5

It was explained that it has been the ministry's position that changes to the proposed regulation are presented at the public meeting. The reason for this approach is to allow the changes to be explained. Then, parties have a period (now 21 days) to respond to or comment on the revised proposed regulation. All parties who comment are advised of the public meeting, and if they cannot attend, they can ask for a copy of the material that is distributed, and the information is supplied.

Ministry officials acknowledged the concern raised by the task force that, for many companies, 21 days would not be an adequate comment period if the companies were unaware of the changes and/or if the changes were major. It was explained that the two main steps in the process when public input is actively sought are the publication in the *Ontario Gazette* of both the Notice of Intention to Designate and the proposed regulation. Notices are sent out and advertisements are placed in the major newspapers. This process gives all companies the opportunity to get involved at the early stages of the development. Using this process, the ministry supplements the list of 'interested parties' that it has identified through the unions, trade associations, etc. Subsequent information, notices etc., are then routinely sent to 'interested parties'.

For recent regulations, a notice describing the major changes is sent to interested parties after the final comment period.

Question 6

Ministry officials responded that notes are taken on all questions and comments made at the public meeting, but that no formal minutes are taken. It was pointed out that many of the questions are answered at the meeting. Comments that do not require written submissions are noted and considered, and major issues that are raised are often followed by a written brief. In this latter case the brief provides a formal record of the comment.

In response to a suggestion that, in the opening remarks to the public meeting, participants be encouraged to follow up their major or detailed comments with written briefs, it was reiterated that both written and oral comments are considered, and the decision whether or not action should be taken on the issues raised are made subsequent to the meeting.

Question 7

Ministry officials reported that the minister stated in the legislature on November 21, 1985 that there is a need to substantially reduce the required time period for air sampling to determine whether the exposures have been excessive. The eight-hour working day calculation was added because it provides greater protection, particularly where exposures are highly variable. It was noted that an eight-hour limit is also easier to enforce. The 40-hour work-week was retained to protect those who work more than 40 hours in one week. It was clarified that both limits will be enforced.

In response to a question it was explained that the sum of the sample results multiplied by the monitoring time for a 12-hour shift would still be averaged to calculate the eight-hour TWA. Similarly, exposures for individuals working six or seven days a week would be averaged to calculate the 40-hour TWA for the week. It was pointed out that this method of calculating makes the limit more restrictive the more hours the worker works.

Question 8

It was reported that the ministry had considered 0.1, 0.5 and 1 ppm as possible limits. It was concluded that neither 0.1 nor 0.5 ppm could be supported by the monitoring methods available *at this time*. It was noted that the regulation includes the ALARA provision, so that if employers demonstrate that they can reduce exposures below 1 ppm, they would be required to maintain or reduce exposures below that level. The ministry officials reported that the use of new monitoring techniques are being reviewed, and, that when a lower limit can be supportable by the technology, the minister has undertaken to review the limit.

In response to a question from the task force it was clarified that the advice received from the medical consultant was that, according to the health effects data, 1 ppm was an appropriate input to consider when determining the limit. Understanding that the health effects resulting from ETO exposure could be serious, it was considered that a lower limit would be better for workers. It was stressed that limits are not set only on technical feasibility but that it is an important factor to be considered because a justice needs to be convinced, on the balance of evidence, that the level was, without a reasonable doubt, above the limit.

With respect to economic considerations, it was clarified that the results of the survey and the costing indicated that it was feasible for hospitals to implement a TWAEL of 1 ppm. The process for amending the regulation, that is, to reduce the limit, would require publication of the proposed amendment, the justification for the amendment and the appropriate documentation. In response to a question from the task force regarding the factors that will be considered when the limit is reviewed, it was explained

that the decision whether or not to amend the regulation would depend on all the evidence and information available at that time.

The task force suggested that the minister's undertaking to review the limit in three years be published and/or included in a letter or notice to accompany the regulation when it is published.

Question 9

It was explained that control by procedure has not been considered for the industrial sector because of the diverse range of processes and practices that deal with specific substances. This is in contrast to the construction industry, where relatively standard procedures are used and, generally, it is not feasible to require engineering controls to protect workers on the job. Ministry officials continued by explaining that a list of specific engineering controls included in the regulation would be impractical for the industrial sector since different procedures could be required for various processes in one plant and for one operation.

In the case of ETO it was acknowledged that even though most hospital sterilizers are alike, other industries do use ETO. Performance standards state a limit, and each employer is required to implement his own procedures to reduce the levels below the limit.

There was a suggestion from the task force that consideration be given to including in the regulation the principle that industries attempt to control exposure by engineering controls designed to reduce emissions at source.

Question 10

Ministry officials explained that, in response to the proposed regulation, one of the two distributors of ETO in Ontario noted that, for them, exposure would only occur in the case of an emergency during transportation or storage of the ETO cylinders. The distributor pointed out that, in this case, air monitoring, controls, etc. were not feasible. The emergency program was developed to address this concern, hence the language restricts its application only to situations where cylinders are only stored.

With respect to flammability, it was explained that flammability and explosives are covered under the safety regulations, and that transportation is under the *Transportation of Dangerous Goods Act*. The case of ETO was considered peculiar since the same company stored and transported the cylinders.

It was clarified that the emergency program applies where a worker is likely to inhale, absorb or come into contact with ETO in the event of an accident or leak and where the health of the worker may be affected thereby. It was stressed that the likelihood of a worker being exposed to ETO during storage of cylinders was greater than the likelihood of exposure to other substances, such as lead, during storage of containers of paint.

The task force noted that the regulation covers inhalation, absorption and contact with ETO; however, the precautions seemed to be designed to protect workers from chronic inhalation. It was pointed out that liquid ETO

has an affinity for leather, and, even after airing, contact with shoes, belts, etc., can lead to severe burns.

Ministry personnel acknowledged the concern and proposed that the issue be addressed in the explanatory material that will accompany the regulation.

In summary, it was clarified that section 8 would not apply to hospitals or any other sectors that use ETO. In these cases, sections 6 and 7 would apply, and handling the cylinders would be one aspect that would have to be addressed by the control program; that is, the workers would have to be apprised of the hazards and the precautions needed.

A question was asked that if the emergency procedure were to be considered for other regulations, would it become a criterion for determining whether or not a substance should be designated, thereby, altering priorities. It was explained that regulation of substances like ammonia and chlorine was being considered as part of the generic regulation for irritants, and that such a regulation could include emergency programs.

Question 11

Ministry officials clarified that section 20(11) states that section 20 does not apply to designated substances. Hence, section 20 orders could not be used in workplaces or for procedures that are exempted from DSRs. However, other provisions of the Act and regulations would apply. The example was cited of arsenic in underground mines, where the mining regulation, which includes TLVs for guidance on exposure, would apply.

Question 12

Ministry officials explained that medical surveillance is appropriate when medical testing or intervention would have some benefit to the health of the worker. In this case medical surveillance was not considered appropriate because there are no changes that can be detected by current tests that would allow a physician to detect early effects of ETO on the health of the worker when exposures are in the range of the TWAEL.

It was explained that medical surveillance had been part of a standard model developed for designated substance regulations. However, when council's advice on medical surveillance (Advisory Memo 85-II) was reviewed, it was decided that the approach should be changed; that is, mandatory medical surveillance would be included only when there is a good basis for it. When there isn't, medical surveillance would not be mandatory. In the case of ETO, the value of the tests were reviewed and it was decided that the health of the workers would not be helped by requiring the workers to undergo routine testing.

In response to a question from the task force, it was explained that the reason for including section 15 was to provide for a medical examination of a worker in the case of an emergency, spill or acute exposure. It was also noted that there is provision for dispute resolution if either the employer or employee had any concern with the application of the section.

With respect to the medical examination, the task force observed that it was not related to medical surveillance. The question was raised that if, as indicated earlier in the meeting, it was to provide for medical examinations in the cases of emergencies or accidents, why was there a distinction in the wording between section 15(1)(a) and (b). Ministry officials agreed to look into this issue.

Task force members noted that it was hard to envision a case where a worker's fitness to work would be threatened without the worker having sought a medical examination under the existing system, and they were concerned at the potential for misinterpretation or abuse of section 15 in the proposed regulation.

Ministry officials pointed out that there could be a situation where a worker is exposed but not disabled and may not require a trip to the doctor. Hence, it may not be reported to the board; however, an examination under the provisions of this regulation may be of value to indicate whether any danger would arise from the exposure.

Ontario Ministry of Labour | Ministère du Travail de l'Ontario

INTERNATIONAL YOUTH YEAR 1985 / ANNÉE INTERNATIONALE DE LA JEUNESSE 1985

APPENDIX IV

Occupational Health and Safety Division
Program Development Unit
400 University Avenue, 14th Floor
Toronto, Ontario
M7A 1T7

May 30, 1986

Mr. Dan Ublansky
Chairman
Task Force on Ethylene Oxide
Advisory Council on Occupational
Health and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Ublansky:

I am pleased to provide you with clarification of some of the issues which arose during the meeting of May 26, 1986, regarding the proposed designated substance regulation respecting ethylene oxide.

I was surprised to learn that Mr. Joe Divitt representing the Canadian Union of Public Employees (CUPE), and Mr. Kosan, representing the Ontario Hospital Association (OHA), did not receive copies of the "Task Force Report on the Survey of Ethylene Oxide Use in Ontario Hospitals" when the report was completed and distributed. I am enclosing copies of the letters of transmittal for these reports to assure you that no oversight occurred or was intended in this regard. Both Lucie Nicholson of CUPE and Ms. Irene Krahn of the OHA were sent copies on November 8. In addition a separate copy was sent to Colin Lambert on December 7.

Concerning Appendix F of "The Report to the Advisory Council on the Designation of Ethylene Oxide in Ontario", Volume 3, I wish to assure you that the air quality assessment data used in this table were not used to support the proposal of a 1 ppm exposure limit for ethylene oxide in Ontario. As indicated on page 20 of Volume 1 of the report, the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) and Ontario's time-weighted average exposure criterion guideline for ethylene oxide over the period when the measurements were taken (1980-1983), was 10 ppm. Measuring techniques at this time were not sufficiently sensitive to make these air quality assessment values of use in determining levels of ethylene oxide below 1 ppm accurately. Nevertheless, the air quality assessment data will be reviewed and any errors in the table will be corrected. As soon as a revised copy of the tables are completed a copy will be provided to the Advisory Council.

In Council's Advisory Memorandum on the arsenic regulation, Council indicated that the changes made in the arsenic regulation with respect to medical surveillance were supported in principle. The changes made in the proposed ethylene oxide regulation regarding medical surveillance were based on the wording of the arsenic regulation as revised by Legislative Counsel and submitted to Cabinet. At the meeting with the task force you expressed concerns about this provision. While certain technical issues were considered, such as the medical rationale for adopting this approach, I have a sense that there may be other considerations which could be worthy of consideration. If you have other questions with which the Ministry could assist you or provide further information, please contact me at your convenience.

I trust this clarification of the points raised in our meeting is satisfactory; however, should you or your officials have further questions on these issues or on any other aspect of the proposed ethylene oxide regulation, I would be pleased to respond to them.

Sincerely,

Arthur Gladstone
Manager

Ontario
Ministry of
Labour

Ministère
du Travail
de l'Ontario

Office
of the
Minister

Bureau
du
Ministre

400 University Avenue
Toronto, Ontario
M7A 1T7
416 965-4101

January 29, 1987

Dr. D. R. McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

Thank you for your letter of June 30, 1986, forwarding Advisory Memorandum 86-I containing Council's review of the development of the Regulation respecting Ethylene Oxide and Related Codes. I appreciate the time and attention given by Council in reviewing this regulation and I have attached a report by my officials in the Occupational Health and Safety Division addressing the issues raised. Council commented on the need to review the time-weighted exposure limit in three years time. I wish to assure Council members of my commitment to undertake a review of the exposure limit when new health effects information becomes available, or a more sensitive analytical technique is available or in three years time, whichever is sooner.

The other recommendation on which I wish to make a more detailed response is the purpose of medical examinations in designated substance regulations.

In the proposed ethylene oxide regulation submitted to Council, provisions for mandatory medical surveillance, which had been included in the version of the regulation presented at the public meeting, were removed. Instead, a new section on medical examinations was added. This section mandates medical examinations on the request of a worker or a worker's physician, where the worker or the worker's physician has reason to believe that the worker's health may be affected by the exposure to ethylene oxide, or by an employer where the employer has reason to believe that the worker's health may be affected by the exposure to ethylene oxide. Council notes in its memorandum that two concerns have arisen from inclusion of this new section. The first concern is that a major revision to the regulation occurred without public comment. The second concern is the appropriateness of the provision for medical examinations itself.

As you are aware, the issue of the making of substantial changes to a regulation late in the process was raised in Advisory Memorandum 85-V, following Council's review of the arsenic regulation where a requirement for medical surveillance under the control program was removed and medical examinations only on request of a worker or employer were added. In my response to that memorandum, I pointed out that although the changes were made at a late date, the issue of mandatory medical surveillance has been discussed publicly over the years and the criteria for removing such a provision from the regulation were those presented by Council in Advisory Memorandum 85-II, which presented Council's advice on health surveillance. The rationale for removing mandatory medical surveillance from the proposed ethylene oxide regulation is the same and, I understand, my officials discussed the specific reasons with the task force reviewing the regulation at a meeting on May 26, 1986. This approach, which Council has stated it agrees with in principle, was used in the arsenic regulation.

Regarding the specific requirements for medical examinations in the proposed regulation, Council concluded that the purpose was to make provision for medical examinations in cases of emergency when a worker is exposed to a high dose of ethylene oxide, but is not disabled or require medical assistance; that is, it was intended to deal with accident situations and not with problems of industrial disease.

I wish to make it clear that the above is not the intention of the new provisions. Following receipt of Council's advice on health surveillance, my officials reviewed the requirements for medical surveillance in light of the criteria contained in Advisory Memorandum 85-II and concluded that ethylene oxide does not meet the criteria for mandatory medical surveillance set out in that memorandum. Therefore, the regulation does not require a full medical surveillance program. My officials concluded that a worker's health would be adequately protected by the inclusion of the same provisions for medical examinations as were included in the arsenic regulation.

These provisions were considered necessary because the Ministry believed that situations could arise wherein an ethylene oxide-exposed worker should receive an examination to determine the worker's fitness to continue working in ethylene oxide exposure. Such examinations and tests need not be part of an ongoing program. As with the arsenic regulation, a mechanism for resolving any disputes between a worker and an employer about the need for a medical examination has been added to the regulation.

The purpose of the new provision is threefold. A medical examination can provide reassurance to a worker or an employer who believes that a worker's health may have been adversely affected as a result of exposure to ethylene oxide either in an emergency situation or in a chronic manner. It permits medical documentation of what may be an occupationally-related disease so that if a worker is deemed unfit for work in ethylene oxide exposure and is removed from that exposure and suffers a loss of earnings as a result of that action, the worker will be entitled to compensation for that loss in the manner and to the extent provided for by the Workers' Compensation Act.

Finally, it provides for the health education of the worker who may be concerned about the health effects of exposure to ethylene oxide. The new provision for medical examinations will permit Ministry officials to enforce the requirements for such examinations should they believe them necessary to protect workers.

In closing, I would like to thank Council for its considered advice. I appreciate its review of this regulation, particularly the comments concerning the introduction of changes regarding medical surveillance.

Sincerely,

WILLIAM WRYE
Minister

Attachment

RESPONSE TO ADVISORY COUNCIL

MEMORANDUM 86-I

ON THE REVIEW OF THE

PROPOSED ETHYLENE OXIDE REGULATION

OCCUPATIONAL HEALTH AND SAFETY DIVISION
MINISTRY OF LABOUR

January, 1987

INTRODUCTION:

During the review of the proposed ethylene oxide regulation by the Advisory Council on Occupational Health and Occupational Safety (ACOHOS) several issues were raised and discussed in Advisory Memorandum 86-I. These issues are:

1. protection of workers' health by a control-by-procedure approach;

2. public comments on regulations;

3. responsibility of the employer to protect all workers at a work place; and

4. the emergency program.

The issues will be addressed in the above order.

1. **Protection of Workers' Health by a Control-By-Procedure Approach**

Council has recommended that the Minister advocate or require under legislation the most effective and efficient means possible of protecting the health and safety of workers under the conditions of the work place through procedural controls. Council has added that such a control-by-procedure approach would have to achieve and better the protection offered a worker by the time-weighted average exposure limit and short-term exposure limit in the regulation.

As Ministry officials discussed with Council's Task Force on Ethylene Oxide, a control-by-procedure approach to protecting workers from exposure to designated substances is not employed by the Ministry in designated substance regulations for the industrial and mining sectors. Such an approach is considered impractical for industrial establishments because there are many different processes in a wide variety of

industries which must be covered by one regulation. The main area of concern about exposure to ethylene oxide is in health care establishments and these differ greatly in the equipment they employ and in the physical layout of the facilities.

The Ministry believes that the best way to develop control programs for designated substances is through the internal responsibility system whereby the employer and the joint health and safety committee develop programs which are specific to particular exposure situations. These control programs can incorporate engineering controls, work practices, hygiene practices, and housekeeping procedures which are appropriate to individual work places. Area and personal monitoring are carried out in order to determine whether the program is being successful in meeting the exposure limits contained in the regulation.

The lowest practical level provision in the ethylene oxide regulation has been included to ensure that, where feasible, time-weighted average exposure levels are reduced to values lower than the current maximum level permitted. To help hospitals achieve this goal, the Ministry will incorporate into the guide book to the regulation any advice on additional procedures which could reduce the time-weighted average exposure of workers working with ethylene oxide.

2. **Public Comments on Regulations**

Council has reiterated its position that the initial draft of a regulation should come as close as possible to the final regulation and that if substantive changes are to be made at a late stage, the Minister should ensure that all interested parties be given an opportunity to comment. The Ministry agrees that consultation with the public is crucial to the development of good regulations and wishes to emphasize that it does not expect to make major changes in a regulation at the time the final regulation is published in The Ontario Gazette. However, the Ministry must be free to make changes it believes are in the interests of worker

protection should additional information come forward or should concerns about the proposed regulation arise in response to Ministry requests for comments.

In this regard, the emergency program will be discussed in more detail later in this document; however, it should be noted here that the introduction of the emergency program was a change that mainly affected 2 companies, one of which had requested a change in the proposed regulation during the initial comment period. The other company met with Ministry officials following the public meeting and admitted that the provisions of the emergency program were worthwhile and that not all of its provisions would have been addressed in the company's own emergency program.

The addition of a time-weighted average exposure limit calculated for an 8-hour day and a 40-hour week was also introduced in response to public comment on the proposed regulation both before and after the public meeting and the subject of calculating time-weighted average exposures on an 8-hour or 40-hour basis has been discussed publicly and within the Ministry for several years.

Mandatory medical surveillance has also been a subject of long-standing concern and has been discussed publicly as well as within the Ministry. The deletion of mandatory medical surveillance and the introduction of voluntary medical examinations have been dealt with in-depth in the letter accompanying this document.

With regard to process, Council has recommended that the Minister ensure that the parties at public meetings be informed that their comments will be noted and considered and that their comments may become part of the formal record of the development of a regulation, which can be reviewed by the public and Council, by submitting a written brief within the comment period following the meeting. The Ministry follows up all comments made at public meetings; for example,

in the development of this regulation a verbal comment on the new OSHA measuring technique was made by the Ontario Nurses' Association (ONA) and was followed up subsequently by inquiries at OSHA and NIOSH as outlined earlier. The Ministry agrees that public input is an important and essential part of the regulation-developing process and will therefore emphasize at public meetings that comments from the public will be noted and that participants should make their comments part of the formal record of a regulation's development by submitting a written brief within the comment period provided.

3. **Responsibility of Employer to Protect All Workers at a Work Place**

Council has recommended that steps be taken to ensure that employers are alerted to their responsibility for protecting the health of all workers in the work place, whether employed by the employer or not. The Ministry believes that this point is made clear in section 3(2) of the ethylene oxide regulation, but that it is worth emphasizing to ensure that employers are fully aware of their responsibilities. The Ministry will therefore ensure that this fact is emphasized in the guide book to the regulation. The Ministry will also ensure that training of inspectors dealing with designated substance regulations makes this point clear to all those who must investigate compliance with the regulations.

In all designated substance regulations the duty is on an employer to ensure that the exposure levels in a work place are below the exposure limits mandated in the regulations and, in the case of ethylene oxide, contract service personnel providing maintenance for ethylene oxide sterilizing equipment must not be exposed to levels of the sterilant in excess of the time-weighted average exposure limit when working at different hospitals. In this regard, meetings were held with the service companies and the Ontario Hospital Association to discuss the problem of exposure of service personnel to ethylene oxide. In hospitals, service personnel work in the mechanical rooms behind the sterilizers and ethylene oxide levels in these rooms are known to exceed the time-

weighted average exposure levels in most cases. The hospitals have agreed to keep exposure of all personnel to a minimum, through the use of respirators if necessary, until engineering controls have been installed making compliance possible without the use of respirators.

4. **The Emergency Program**

Council recommended that the Ministry reconsider the appropriateness of including the proposed specific provisions for an emergency program in the ethylene oxide designated substance regulation. Council stated that it agreed that there is a need for emergency programs but had reservations about the program proposed. Council then made the point that such programs usually outline a series of procedures to be followed in the case of an accidental leak or spill of an acutely toxic or highly reactive substance.

The Ministry agrees that the above description aptly describes most emergency programs designed to protect workers from a specific substance under specific circumstances. However, the emergency program in the ethylene oxide regulation was not designed for such a particular purpose. The ethylene oxide emergency program is a general program, written in response to a specific request for the Ministry to "differentiate between manufacturers and processors utilizing the product and agents or distributors who only handle and store the product". In a brief on the proposed regulation, Canadian Oxygen Limited (CANOX) stated that although exposure to ethylene oxide was very unlikely in their work place, a leaking or damaged cylinder could possibly expose workers. Therefore, because exposure was possible, CANOX indicated that a full control program including air monitoring and, at the time, medical surveillance, would need to be considered. CANOX believed that the cost of such a program was unwarranted and, with respect to air monitoring, would be of no effect except after an accident had occured.

The Ministry decided, therefore, to ease the burden of having to institute a complete control program for the two distributing companies; however, in order to ensure that workers in these two companies were adequately protected in the event of an emergency, the Ministry introduced the concept of an "emergency program" which was intended to include provisions to protect workers from possible accidental exposure to ethylene oxide. The program would ensure: that the area containing the ethylene oxide cylinders was clearly marked with easily visible warning signs; that an effective evacuation system was in place; that respiratory equipment was available; that, where practical, air monitoring was done to determine the presence or absence of ethylene oxide following an accident; and that a training program was put in place to familiarize supervisors and workers with the health effects of ethylene oxide and the measures and procedures to be taken in case of an emergency. These provisions were not intended to be considered as a complete emergency program for all toxic substances nor, necessarily, as a model for other designated substance regulations.

Council also expressed concern that section 8 (the emergency program) only applies where ethylene oxide is contained in closed containers and only in the case of an emergency leak or spill, but that it does not apply to work places which store and use the substance but where it has been considered that the workers' health is not likely to be affected, that is where no control program would be required. The decision as to whether a control program is necessary is, as always in designated substance regulations, the responsibility of the employer in consultation with the joint health and safety committees. In all work places where ethylene oxide is used or produced, other than distributorships where ethylene oxide is merely handled or stored in closed containers, an assessment would reveal whether there is a likelihood of exposure and whether there is need for a control program.

Advisory Memorandum 86-II

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

November 24, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

On behalf of the Advisory Council, I am pleased to submit Advisory Memorandum 86-II Concerning the Establishment and Functioning of Joint Health and Safety Committees in Ontario. The advisory memorandum includes council's initial commentary on the survey of joint health and safety committees and council's recommendations at this stage, and also highlights areas for further work.

As well, I am enclosing the correlation matrices underlying the regression analyses in the consultant's report on the survey of joint health and safety committees that was forwarded to you previously. Council feels that this material should also be available to interested parties.

Yours truly,

D. R. McCalla
Chairman

Encl.

cc: G. Thompson
A.E. Robinson
A. Gladstone

Advisory Memorandum 86-II to the Minister of Labour November 24, 1986

Concerning the Establishment and Functioning of Joint Health and Safety Committees in Ontario

INTRODUCTION

Since 1979, joint health and safety committees have been mandatory in most Ontario workplaces that have 20 or more employees and that are covered by the *Occupational Health and Safety Act*. They have also been mandatory in smaller workplaces where designated substance regulations apply under the Act. These committees form an integral part of the overall system of responsibility upon which much of the implementation of occupational health and safety programs in the province is predicated.

The concept of a system of responsibility for workplace health and safety and the mandating of joint health and safety committees (JHSCs) grew out of a concern for the complexity and magnitude of occupational health and safety issues and a growing sense of the need to provide employers and employees, as well as Ministry of Labour officials, with mechanisms to deal with these issues, in so far as is possible, at the workplace level. However, from its genesis in the heated debates about occupational health and safety in the late 1970s, the development of this concept has been marked by continuing controversy.

The first major influence upon the development of the concept of a system of responsibility for occupational health and safety in Ontario was its strong endorsement by The Royal Commission on Health and Safety of Workers in Mines (the Ham commission). The Ham report described elements of a broad responsibility system involving workers and managers, individually and collectively, government and the public. Dr. Ham noted that the scope of that system was related to five basic factors that together determined levels of occupational risks in mines:

> 'The quality and kind of industrial management and supervision; the degree of participation and commitment from employees, individually and collectively, in labour unions and otherwise; the state of social expectation and concern in mining communities and in the public at large; the measure of political attention as expressed in legislation, in related government administrative practices for monitoring compliance and a provision for compensation; and the combined effectiveness of the above parties in operating as a system.'[1]

Within the overall responsibility system, Ham identified an 'internal responsibility' system in which workers and managers at various occupational levels have specific roles and 'direct' responsibilities for identifying and correcting hazardous conditions.[2] He proposed the appointment of 'worker auditors' and joint health and safety committees with 'contributive' responsibility to maintain the alertness and responsiveness of the internal responsibility system on an ongoing basis. The role of the ministry inspectorate was

seen as essentially to monitor health and safety conditions[3] and to provide an 'external audit' of the alertness and responsiveness of the internal responsibility system.[4]

Dr. Ham's identification of an internal responsibility system and his distinction between direct and contributive responsibility advanced, but by no means resolved, debate about the requirements of an effective responsibility system for occupational health and safety. The general lines of this debate were presaged in submissions to the Ham commission and continue to the present.

Most parties making representation to the Ham commission endorsed, in principle, the concept of a responsibility system. There was both a general recognition that an exclusive reliance on governmental 'policing' of workplaces was inadequate to the issues at hand and an enthusiasm for other approaches that draw upon the insights, experience and day-to-day contacts with the workplace that workers and managers could bring to bear. There were also, however, both sharp and subtle differences in the interpretation of these principles.

Organized labour emphasized that the concept of a responsibility system must not be taken to imply any less need for enforcement activity by the Ministry of Labour; on the contrary, a strong enforcement role was seen as an essential component of such a system. Furthermore, labour sought a greater measure of worker control over matters of occupational health and safety than was embodied in the Ham proposals and in subsequent legislation. Employers, on the other hand, were concerned about the implications of the responsibility system for management prerogatives and for the ultimate responsibility of management for health and safety in the workplace.

The model of joint health and safety committees established in the *Occupational Health and Safety Act*, which came into force in 1979, reflects these competing concerns. Joint health and safety committees are not given formal decision-making authority in matters of health and safety, but their legislated structures and powers are designed to link them to other elements of the responsibility system. Worker members are to be selected by workers and are empowered to conduct periodic workplace inspections, to participate in investigations of critical injuries and work refusals and to accompany Ministry of Labour inspectors during ministry inspections. Meetings are to be held at least once every three months, minutes are to be posted and they are to be reviewed by the ministry inspector. The committee as a whole is empowered to obtain information from an employer respecting the identification of potential or existing hazards in materials, processes or equipment.[5]

Furthermore, regulations governing various 'designated substances' (11 of which have been promulgated since 1979), require that committees be consulted by the employer in the conducting of assessments and the development of control programs for these substances and that they be provided with information regarding the results of monitoring and medical surveillance.

Over the seven years since the Act came into force in 1979, concerns about the interpretation of the roles of the various parties comprising the 'respon-

sibility system', and about the actual operation of joint health and safety committees within that system, have been expressed in a number of forums. In 1981 The Joint Federal/Provincial Inquiry Commission into Safety in Mines and Mining Plants in Ontario (the Burkett commission) considered the issue and attempted in its report to clarify the roles and responsibilities of the parties concerned with occupational health and safety by elaborating upon Ham's distinction between 'direct' and 'contributive' responsibility:

> 'Direct responsibility for safe production extends to those who are directly responsible for the organization of work, the design of work practices and the manner in which, and the conditions under which, work is performed. Direct responsibility falls to the worker, supervisor, management and the executive: the line organization. Contributive responsibility extends to those who, although not directly responsible for the performance of work, are in a position to contribute to safe production through consultation, advice, audit, inspection, etc. Contributive responsibility falls to health and safety committees, safety departments, unions, Mines Accident Prevention Association of Ontario and the Mining Health and Safety Branch.'[6]

In 1981 council organized two meetings with representatives of management and labour in Kitchener and Thunder Bay to discuss issues of participation in health and safety programs. At these meetings, as council noted in its Third Annual Report, 'a number of specific issues were raised which have an important bearing, not only on the question of worker participation in the joint health and safety committee programs, but also on the extent of participation by ministry officials in the joint effort to produce a safer workplace.'[7]

Two New Democratic Party task forces, one in 1982, the second in 1986, have, in their respective tours of a number of locations in the province, also highlighted the issue and have uncovered a number of problems with the functioning of committees. The attention accorded to these issues is indicative of a broader public awareness of environmental and workplace health and safety matters.

The mandating of joint health and safety committees, then, represented a significant legislative innovation in an area of considerable public concern. It is appropriate, in council's view, that actual experience with this innovation be reviewed in a systematic and comprehensive way. How successful has this innovation been? What factors have contributed to success or failure?

In deciding to undertake a survey of joint health and safety committees to address these issues, council identified a number of dimensions along which success or failure could be evaluated. Specifically, council identified the following list of objectives for the survey:

a) to describe the procedural and structural characteristics of joint health and safety committees in Ontario, e.g. size, frequency of meetings, selection, training and turnover of members, publication of minutes, etc.;
b) to describe information flow in the workplace among management, labour and the committee;

c) to describe the substantive issues dealt with by committees, e.g. identification of hazardous situations, recommendations regarding new procedures and equipment, and management responses to these issues;
d) to describe inspection activities of committees, particularly those pertaining to the designated worker representatives;
e) to describe the methods for informing and involving designated worker representatives in the investigation of critical injuries and fatalities;
f) to describe experience with conflict resolution in the committees;
g) to identify the factors associated with differences among committees with regard to (a) to (f) above;
h) to relate differences in committee functioning to differences in the sources and level of management and labour information regarding health and safety conditions in the workplace and regarding their own rights and responsibilities;
i) to assess the committees' perceptions of the role of the Ministry of Labour in facilitating and monitoring the progress of joint committees;
j) in appropriate workplaces, to assess the consultation process required under the designated substances assessment and control programs;
k) to assess programs deemed by the Ministry of Labour as equivalent to joint health and safety committees in the terms outlined in (a) to (i) above; and
l) to provide information that may be required for designing a follow-up study consisting of on-site interviews.

The remainder of this document will (i) briefly describe the process through which a survey designed to meet these objectives was undertaken, (ii) provide an initial commentary on its findings, and (iii) provide recommendations based upon these findings. It is intended to highlight certain areas of concern, to make those recommendations that council deems warranted by the analysis to date and to indicate areas for further work.

SURVEY DESIGN AND METHODS

The Ontario-wide mail survey of joint health and safety committees was conducted under the auspices of council by a private consultant under a contract awarded through public tender. An invitation to submit bids attracted 71 interested organizations. After reviewing the request for proposals, 12 consulting groups submitted bids. Bids were evaluated, and selection of the consultant, SPR Associates Inc., was made with the approval of council on the basis of criteria established by a technical advisory committee and by council's Task Force on The Implementation of the *Occupational Health and Safety Act*. Both the technical advisory committee and task force members worked closely with the consultant in the design of the survey and the evaluation of results. The SPR Associates' report on the survey, which is reproduced in Volume II of council's 1985 annual report is, nonetheless, the sole responsibility of the consultant.

The survey generated a substantial data base recording the observations and opinions of worker and management members of joint health and safety committees. As the consultant notes, these data reflect the combined judgement of thousands of individuals who have assumed front-line roles in health and safety through their work on workplace joint health and safety committees.

Furthermore, to assess the reliability of these subjective data, the consultant conducted extensive tests, which included tests of internal consistency, management – worker agreement and agreement between the survey data and information obtained from administrative files of the Ministry of Labour. The results, combined with test-retest estimates of reliabilities obtained in a pilot study, gave the consultant a high degree of confidence in the reliability of the survey data.[8]

The main target population for the survey comprised those workplaces required by the Act to have joint health and safety committees. These were generally industrial, health and educational workplaces with 20 or more workers or those where designated substances are present.

The sampling plan called for stratified random sampling of 2,850 workplaces, allowing for comparisons on the presence of designated substances, unionization, size and industrial classification as well as permitting provincial-level estimates. A portion of the sample was devoted to a validation of the sampling frame to assess the extent to which it covered all eligible workplaces in the target population.

The survey process involved:

1) a preliminary screener stage in which managers of the sampled workplaces were asked to identify joint health and safety committee members so that the consultant could select and contact respondents directly without intervention by the employer. This screener survey also collected basic information related to the age of the committee, the number of members and their length of service on the committee, the size of the work force, etc.
2) the main survey, where separate, but similar, questionnaires were mailed directly to worker and management joint health and safety committee members.

This two-stage methodology and the questionnaire design were tested with a pilot sample before proceeding with the full survey. Response rates (achieved through multiple follow-up contacts by mail and telephone to urge response) were impressive: 93 per cent for the screener survey and 76 per cent for the subsequent committee member survey.

FINDINGS

As noted, the mandating of joint health and safety committees in 1978 constituted a major innovation on the part of the government to promote occupational health and safety in Ontario. The results of the survey suggest that, as of 1985, this innovation can be considered a qualified success. Committees are established in the majority of workplaces, and most of them are performing at least basic functions, such as periodic meetings and the taking of minutes.

This success is qualified, however, by a number of observations in three closely related areas in which there appear to be problems regarding the functioning of committees. These are:

- low levels of compliance with the legal requirements of the *Occupational Health and Safety Act;*
- lack of training and education of joint health and safety committee members; and,
- inadequate communication among joint health and safety committee members, and between committees and the work force and management generally and the Ministry of Labour.

There may well be considerable overlap among these categories of problems. Considerably more work could usefully be done in identifying and explaining patterns of effective and ineffective committee functioning. The present commentary is intended only to highlight certain issues and problem areas revealed by the survey. Council intends to pursue several of these issues through further analysis of the data-base generated by the survey.

Legal Compliance

The survey revealed high rates of compliance with the legal requirement to establish committees. Ninety-three per cent of workplaces with 20 or more employees were in compliance with this basic requirement. Put another way, an estimated 7,600 such workplaces, with 900,000 workers, have established joint health and safety committees. The seven per cent of workplaces with over 20 employees that are not in compliance with this basic requirement comprises approximately 574 workplaces, with 28,000 employees – hence, the size of this non-complying group, while small in proportionate terms, is by no means negligible in absolute terms. Employers in these workplaces, contacted through the screening survey, were likely to cite unawareness of the legislation as the reason for failure to establish a committee. Rates of non-compliance were somewhat higher in small and non-unionized workplaces than in larger and unionized workplaces.

Workplaces with the least impressive record of establishing joint health and safety committees are within a group recognized separately under the legislation. This group consists of workplaces with fewer than 20 workers but having designated substances present. Only about 66 per cent of these workplaces have established committees. (It should be noted that this figure may either under- or over-estimate the degree of non-compliance. The survey defined this group using ministry records of 'under-20' workplaces with designated substances present. However, as will be discussed below, the survey also revealed a considerable discrepancy between ministry records and committee member reports of the presence of designated substances.)

The establishment of a committee represents only the minimum level of compliance. The Act also specifies a number of structural and procedural requirements. In this regard, the record of Ontario workplaces is less impressive: only about 20 per cent are in full compliance with all legal requirements. Examples of such structural and procedural non-compliance include:

- Non-payment of worker members for time spent doing committee work. Approximately 10 per cent of the worker members surveyed report receiving no payment, another 10 per cent report receiving partial payment.
- Non-participation of worker members in workplace inspections. Eleven per cent of worker members of committees report that worker members

never conduct inspections. The regression analysis indicates, furthermore, that the frequency of worker members' inspections is a major factor in the perceived success and impact of committees.
- Inadequate frequency of committee meetings. The Act requires committees to meet at least four times a year; however, 17 per cent of the members who responded indicate that committees met less frequently.

In workplaces where designated substance regulations apply, additional committee functions are accordingly specified in legislation. However, rates of non-compliance are considerable: 33 per cent of worker committee members and 19 per cent of management committee members report that they were not consulted in the conduct of assessments.

Furthermore, there were discrepancies between ministry records of the presence of designated substances in particular workplaces and committee member reports. In some cases, committee members reported that specific designated substances were not present where the ministry had recorded their presence; in other cases, committee members reported the existence of specific substances whose presence was not indicated in ministry records. Without further investigation and verification, these discrepancies cannot be resolved. Council points them out in this context as an indication of difficulties in the implementation of designated substance regulations and of broader difficulties regarding the awareness, on the part of management, workers and the ministry, of the presence of toxic substances in the workplaces.

Training and Education

'More training' was cited more frequently as a factor that would improve the functioning of committees than was any other factor. This judgement by committee members is not surprising given that almost 40 per cent of worker joint health and safety committee members and 20 per cent of management members report receiving neither health and safety training (for example, training related to hazard recognition or accident investigation) nor training specifically related to the *Occupational Health and Safety Act*.

Council has three major concerns regarding the issue of training and education. In the first place, and most importantly, an inadequately trained committee is unable to provide employers with the necessary technical and practical knowledge to help resolve health and safety problems in the workplace.

Second, training and education are, most probably, related to other factors influencing committee success. For example, lack of training and education could result in uncertainty about the role of committees and how responsibilities, as outlined in legislation, should be fulfilled, and hence could contribute to the problems of non-compliance outlined earlier.

Finally, substantial proportions of both management and worker respondents rated the levels of knowledge, understanding and concern regarding the Act and health and safety hazards among management and the work force in general as being 'less than adequate to poor.'[v] This finding is given added importance by the fact that regression analyses indicated that 'understanding and concern' for health and safety matters among workers and

managers contributed significantly to the perceived effectiveness of committees. Although council has not as yet investigated the relationship between 'training and education' and 'understanding and concern', it is reasonable to assume that they are positively related.

Communication

The results of the survey suggest some problems of communication between JHSC members and the work force, management and ministry inspectors respectively. Thirty-five per cent of worker respondents reported that the general work force did not participate in the selection of worker members; management either appointed worker members (19 per cent) or accepted volunteers (16 per cent). Twenty-three per cent of worker members reported that the names of joint health and safety committee members were not posted or publicized where they could easily be seen.[10]

There were fewer indications of problems of communication between joint health and safety committees and management, although 10 per cent of worker members reported that management 'did not give reasons' for rejecting joint health and safety committee recommendations.

The importance of good communication between committee members and Ministry of Labour inspectors was also highlighted by the survey. The role of inspections was identified as a key factor affecting both the functioning and the perceived impact of joint health and safety committees. The regression analyses indicate that joint health and safety committee members perceive their committees to be working better where ministry inspectors were actively involved with committees, reviewing minutes, providing advice on how to improve effectiveness and discussing the results of inspections with members. However, responses to the survey suggest that linkages of communication are stronger between ministry inspectors and management members than with worker members of committees. Approximately 20 per cent of worker committee members were not aware of how often their workplaces are inspected by the Ministry of Labour inspectors, and 14 per cent reported they never accompanied inspectors during workplace inspections. The corresponding figures for management respondents were 10 per cent and five per cent respectively. Although these responses were not matched by workplace, some of these discrepancies are large enough to suggest that worker and management members may be perceiving these events differently. (Responses were received from both worker and management members of about 70 per cent of the committees in the sample of participants).

Finally, effective communication requires the availability of adequate information. The survey indicated that approximately 25 per cent of worker members and about 10 per cent of management members are dissatisfied with the type and amount of information available to joint health and safety committees. This level of dissatisfaction is a matter for some concern because the regression analyses suggest that committee members' satisfaction with the information they receive is a significant factor influencing the perceived effective functioning and impact of committees.

CONCLUSION

This discussion has focused on problems associated with the establishment and functioning of joint health and safety committees in Ontario. At the same time, it should be kept in mind that the survey found a number of positive results. Many joint health and safety committee members, both on the worker and management sides, rate relationships with each other as being co-operative, trusting and friendly. Co-operative problem-solving behaviour appears to outweigh mechanisms of confrontation as the means by which joint health and safety committees function.[11]

There has been sufficient success to provide confidence that attention to certain problem areas at this point can yield positive results. More work, including further analysis of the survey data base, needs to be done to delineate these problems more fully. At this stage, however, council believes that the survey has produced sufficient information on which to base a number of recommendations to the minister. The following section outlines those recommendations.

RECOMMENDATIONS

ACOHOS RECOMMENDATION 86-7
The Ministry Inspection Role

that the Minister of Labour review the inspection role of the ministry, particularly with regard to ensuring the establishment of joint health and safety committees and promoting their effective functioning and also with respect to the ministry's overall philosophy of enforcement.

The need for attention to enforcement is demonstrated, in the first instance, by areas of non-compliance indicated by the survey results and discussed above, such as:

i) *Committee Establishment:* Approximately seven per cent of Ontario workplaces that have 20 or more employees and that are covered by the Act are without joint health and safety committees.
ii) *Selection of Worker Representatives to Joint Health and Safety Committees:* Some 19 per cent were selected by management and another 16 per cent were accepted by management as volunteers.
iii) *Worker Representation on Joint Health and Safety Committees:* In approximately six per cent of the workplaces surveyed worker members constituted less than 50 per cent of joint health and safety committee membership.
iv) *Committee Meetings:* Seventeen per cent of the joint health and safety committees surveyed did not meet the Act's minimum requirement to meet at least four times per year.
v) *Entitlement to Payment for Time From Work:* Approximately 20 per cent of worker members of committees report they are not being paid for time spent performing committee duties and activities.
vi) *Workplace Inspections by Worker Members of Joint Health and Safety Committees:* Responses suggest that in approximately 11 per cent of the workplaces surveyed, inspections were never conducted by worker members of joint health and safety committees.

Council addresses some of these problems more specifically in the recommendations that follow. It is crucial at the outset, however, to emphasize the importance of the role of the ministry inspectorate in improving the performance of committees along these and other dimensions.

Elements to consider in promoting more ministry involvement with joint health and safety committees include:

1. Increasing the 'proactive' role of ministry inspectors (that is, activities such as reviewing minutes, providing referrals, giving advice, following up on orders, discussing inspection results, asking about other problems and resolving committee disputes). The regression analyses show that such proactive behaviour by Ministry of Labour inspectors is considered a major factor in influencing both the functioning and a positive perception of impact and success of joint health and safety committees.

   The issuing of orders *per se* by Ministry of Labour inspectors was not identified by the regression analyses as an important factor in the functioning of joint health and safety committees. However, a separate piece of information suggested that the 'enforcement' role of the ministry should not be ignored: 53 per cent of worker joint health and safety committee members called for stronger ministry enforcement of the legislation. Twenty-five per cent of management members on joint health and safety committees also believed that such action would make their joint health and safety committees work better.

2. Increasing the frequency of ministry inspections. About eight per cent of committee members report that their workplaces are inspected by the ministry less frequently than once a year. (More precisely, eight per cent of those who indicated that they knew how often their workplace was inspected reported this low frequency. Of the total sample, about 20 per cent of workers and 10 per cent of management members were not aware of how often their workplaces were inspected.) The regression analyses indicated that more frequent inspections by the ministry contributed to a perceived reduction in the level of danger in the workplace and improved understanding of health and safety by management and workers generally.

3. Developing more effective linkages to the joint health and safety committees generally. Linkages between the ministry and joint health and safety committees include the frequency of ministry inspections, the frequency with which management and worker members accompany ministry inspectors, joint health and safety committee access to ministry inspection reports and orders, and following up on compliance with ministry inspection orders.

4. Promoting even-handed relations with worker and manager members of joint health and safety committees. The survey suggests that management members accompany Ministry of Labour inspectors 75 per cent of the time as compared to 65 per cent for worker members.

5. Facilitating the establishment of joint health and safety committees in workplaces with less than 20 workers that have designated substances present.

The analysis of the survey data to date has been important in highlighting the role of the ministry in influencing the effectiveness of committees as perceived by their members. More work with the data base remains to be done, however, in examining more carefully the nature of this role and the particular ways in which the ministry can contribute to committee effectiveness.

ACOHOS RECOMMENDATION 86-8
Designated Substances Strategy

that the Minister of Labour review the appropriateness of the current approach to the regulation of designated substances, particularly with regard to the identification and documentation of hazardous materials and chemical substances handled in the workplace.

As pointed out earlier, designated substance regulations specify a role for joint health and safety committees over and above those stated in the *Occupational Health and Safety Act*. Committees are to be consulted with respect to assessments and in the development of control programs, and they are to be provided with information regarding the results of monitoring and medical surveillance. Among workplaces with less than 20 workers and designated substances, however, non-compliance is very high. The survey indicates that approximately 22 per cent of those workplaces do not have established committees. In workplaces with 20 or more employees, failure of management to consult with committees regarding designated substances and problems regarding the identification of the presence of such substances were also apparent in the survey results.

These problems raise the larger issue of an appropriate strategy for the identification and regulation of toxic substances in the workplace. Council hopes to comment on this issue at greater length in the future, but would suggest that any such strategy should at least require a list of all materials and substances handled in the workplace to be prepared by the employer for scrutiny by both the ministry and joint health and safety committees.

ACOHOS RECOMMENDATION 86-9
Training for Joint Health and Safety Committee Members

a) that the Minister of Labour review the techniques and mechanisms used to deliver training programs to joint health and safety committee members and cause the development of such techniques and mechanisms necessary to ensure delivery of training programs to all joint health and safety committee members;
b) that the Minister of Labour ensure that training programs for delivery to joint health and safety committee members include: information on the *Occupational Health and Safety Act*, information on designated substances regulations and other information relevant to health and safety in the workplace; and,
c) that the Minister of Labour require, through legislation, that joint health and safety committee members receive appropriate training and be paid for time so spent.

ACOHOS RECOMMENDATION 86-10

Education of Workers and Managers in the Workplace Generally

that the Minister of Labour consider mechanisms to ensure the delivery of programs:

i) to educate workers and managers on provisions of the *Occupational Health and Safety Act* related to joint health and safety committees; and,

ii) to promote better worker and manager understanding and awareness of occupational health and safety issues.

Survey results regarding the problem of inadequate training and education have been discussed above at some length. As noted, more work could usefully be done with the existing data base to identify more closely the types of workplaces in which lack of training is a problem (and to which training programs could productively be targeted) as well as to investigate more fully the effects of training and education upon legal compliance, understanding and concern for health and safety and other variables of interest. At this point, however, the general contours of the problem are apparent, and they give reason for considerable concern.

Developing a response to this problem requires attention, not only to the content of existing programs, but, more importantly, to existing delivery mechanisms. The content of the programs that have been offered to date may well be sufficient to meet the needs of potential clients; but it appears that these programs are not reaching many of their potential clients. A comprehensive evaluation of the training programs offered by safety associations and organized labour could be a useful tool in estimating demand and identifying effective methods of delivery.

ACOHOS RECOMMENDATION 86-11

Joint Health and Safety Committee Access to Information on Health and Safety Matters Within the Workplace

that the Minister of Labour take steps to ensure joint health and safety committees access to pertinent information on health and safety in the workplace, either through legislation or other effective mechanisms.

Members of committees identified more information on health and safety matters as a priority for improving committee functioning. Furthermore, regression analyses indicated that satisfaction with the type and amount of information was a key factor in facilitating the functioning and improving the perceived effectiveness of committees.

ACOHOS RECOMMENDATION 86-12

The Structure of Joint Health and Safety Committees

that the Minister of Labour take steps to amend the Act in order to ensure that joint health and safety committees:

i) have at least two worker members; and,

ii) have two co-chairpersons, one chosen by management members and one chosen by worker members.

Regression analyses of survey results indicate that the presence of more than one worker member on a committee contributes to the 'institutionalization' of committee processes – the regular scheduling of meetings, the keeping and posting of minutes, the dissemination of inspection reports, etc.

The survey also found that committee chairmen are commonly appointed by management, and are frequently management members. Council believes that the selection of co-chairpersons from worker and management committee members would underline the joint responsibilities of workers and managers, and also aid in enhancing the profile of worker representation within the committee structure. This could improve the extent to which workers regard the committee as a serious and credible body to which they should contribute and lend support.

ACOHOS RECOMMENDATION 86-13
Selection of Worker Committee Members

> that the Minister of Labour take steps to enforce provisions of existing legislation that requires worker members of joint health and safety committees to be selected by workers.

The selection of worker members of committees by management in a large number of workplaces suggests that mechanisms are not in place in those workplaces to allow workers to select their own committee representatives. In unionized workplaces, the responsibility for the selection of worker representatives rests with the union(s). In non-unionized workplaces, however, some formal mechanism, such as an annual meeting to select worker members, perhaps for set terms, is required. A written verification of the method of selection should be attached to the minutes of the subsequent committee meeting.

ACOHOS RECOMMENDATION 86-14
Inspections by Worker Joint Health and Safety Committee Members

> that the Minister of Labour ensure that the requirement under the Act for inspections of the workplace by worker members of JHSCs be amended to require monthly inspections, with exceptions to be approved by a Director.

The Act currently requires that committee members representing workers designate one of their number to inspect the physical condition of the workplace *not more often than* once a month or at such intervals as a Director may specify. The survey indicated considerable variety among workplaces in the frequency with which such inspections were conducted. Over 50 per cent of worker and manager respondents reported that their workplaces were inspected at least once a month (indeed, about 10 per cent reported *weekly* inspections, which is more frequent than provided for under the Act). About seven per cent of managers and 11 per cent of workers reported that their workplaces were never inspected by worker committee members, and the remainder of the respondents reported frequencies ranging from once every two months to once a year. Furthermore, the regression analyses found frequency of inspections to be positively related to a number of measures of perceived committee impact.

ACOHOS RECOMMENDATION 86-15

Investigation of Work Refusals and Critical Injuries/Fatalities by Worker Joint Health and Safety Committee Members

a) that the Minister of Labour ensure the development of a clear and concise statement of the roles and responsibilities of committee members in the investigation of work refusals and critical injuries; and,

b) that the Minister of Labour take steps to require that reports on work refusals and critical injuries investigations be discussed at the following committee meeting. In the absence of an agreement between management and worker reports, separate reports may be filed by worker and management members of committees.

One troublesome finding of the survey was the difference in the proportions of worker and management members reporting the occurrence of work refusals and critical injuries and the participation of worker members in the investigation of these events. Approximately 16 per cent of the worker representatives surveyed believed that work refusals investigations had occurred during the preceding 12 months, and 21 per cent reported the occurrence of critical injuries. The corresponding figures for management representatives were 11 and 10 per cent respectively.[12] Again, we caution that these responses are not matched by workplace, but suggest that the size of the discrepancy gives reason to believe that they reflect an underlying difference in perceptions.

Approximately 82 per cent of the management members (as opposed to 57 per cent of worker members) reported that worker members always participate in work refusal investigations. With regard to investigation of critical injuries/fatalities, 75 per cent of the management representatives (as opposed to 42 per cent of worker representatives) reported that worker representatives always participated.[13]

There appears to be some confusion regarding the roles and responsibilities of committee members in the investigation of work refusals and critical injuries. Particularly regarding the latter type of event, the members may require special training and may have to co-ordinate their activities with those of other investigators. A clearer specification of roles and responsibilities would aid in both of these respects.

ACOHOS RECOMMENDATION 86-16

Preparation Time for Joint Health and Safety Committee Worker Members

that the Minister of Labour take steps to amend the Act to allow worker joint health and safety committee members paid preparation time for meetings.

'More time to study technical information' was identified by 62.7 per cent of worker members as a factor that would improve the effective functioning of joint health and safety committees. Indeed, only three other factors – training, support from management and workers in general, and information – were cited more often than 'time' in this regard. Council believes that the joint health and safety committee itself can provide advice about

what constitutes 'reasonable' paid preparation time in the particular circumstances of a given workplace.

ACOHOS RECOMMENDATION 86-17

Management-Joint Health and Safety Committee Consultation and Communication

a) that the Minister of Labour take steps to require management to advise and involve joint health and safety committee members regarding all health and safety policy and program developments in the workplaces within which the joint health and safety committee has jurisdiction; and,

b) require management to respond in writing to all written recommendations submitted by joint health and safety committees.

An anomalous feature of the *Occupational Health and Safety Act* is that, while it allows for consultation between workers and management representatives on committees, it does not require management to consult with committees outside the scope of designated substance regulations. Council is of the opinion that committees should be involved in or, at the very least, be aware of, the development of all aspects of health and safety policies, programs and procedures in their respective workplaces.

Communications between management and joint health and safety committees would also be enhanced if management responded in writing to all committee recommendations. The survey data indicates that approximately 10 per cent of the worker members who responded to the survey reported that recommendations were rejected by management without explanation. In these situations the joint health and safety committees are clearly not working with management, and such committees are not participating fully in the internal responsibility system.

ACOHOS RECOMMENDATION 86-18

Effective Communication between Joint Health and Safety Committees and Workers

that the Minister of Labour, in order to encourage joint health and safety committees to communicate more effectively with the work force, take steps to:

i) increase the frequency of committee meetings; and,

ii) ensure the posting of minutes within one week after they have been approved.

ACOHOS RECOMMENDATION 86-19

Time to Function

that the Minister of Labour take steps to ensure worker members of joint health and safety committees reasonable time to listen to and discuss workers' concerns about health and safety in the workplace.

More frequent meetings and more time to listen to and discuss workers' health and safety concerns should strengthen the communication process

between committees and the work force. Meetings are also likely to improve health and safety orientation among workers. The survey data suggests that in most workplaces meetings are held frequently and that additional meetings are called when needed. However, a substantial minority of worker members (16.7 per cent) reported that meetings were held less than four times per year. Furthermore, 41.9 per cent of the worker members cited 'more regular and frequent meetings' as a factor that would improve the effectiveness of committees.

The issue of providing workers with direct access to their joint health and safety committee members is important. Such provisions would aid in bringing to the attention of the committee complaints that do not reach the level of a work refusal or a critical injury, but that, nonetheless, need to be addressed. There are, however, practical complications such as rotating work shifts. The joint health and safety committee should be involved in determining how workers can best be provided with reasonable and practical access to committee members, committee minutes and reports.

References

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2. *Ibid.*, pp. 152, 162.
3. *Ibid.*, p. 152.
4. *Ibid.*, p. 162.
5. The *Occupational Health and Safety Act* R.S.O. 321, 1978.
6. The Government of Ontario. *Report of the Joint Federal/Provincial Inquiry Commission into Safety in Mines and Mining Plants in Ontario, Vol. 2* (Burkett report), Kevin M. Burkett, Chairman. Toronto, Ministry of the Attorney General, 1981, p. 13.
7. 'Introduction' *Advisory Council on Occupational Health and Occupational Safety Third Annual Report, April 1, 1980 to March 31, 1981*, p. 14.
8. Consultant's Report on a survey of Joint Health and Safety Committees in *Advisory Council on Occupational Health and Occupational Safety Eighth Annual Report, April 1, 1985 to March 31, 1986*, Vol. 2, p. 121.
9. *Ibid.*, pp. 43-44.
10. *Ibid.*, p. 254.
11. *Ibid.*, pp. 73-74.
12. *Ibid.*, p. 71.
13. *Ibid.*, p. 81.

Ontario

Advisory Council on Occupational Health & Occupational Safety

Conseil consultatif de la santé et de la sécurité au travail

INTERNATIONAL YOUTH YEAR 1985
ANNÉE INTERNATIONALE DE LA JEUNESSE 1985

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7

416/965-2448

October 7, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

It has been brought to council's attention that a ministry questionnaire requesting some basic information on joint health and safety committees has been received in a number of workplaces.

Council is naturally interested in knowing the nature and purpose of this undertaking and would have welcomed some discussion so that council would be aware of this ministry activity. Council would now appreciate hearing from you regarding the objectives and scope of the survey.

Yours truly,

D. R. McCalla
Chairman

cc: G. Thompson
A. E. Robinson
A. Gladstone

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

October 15, 1986

Mr. D. R. McCalla
Chairman
Advisory Council on Occupational Health and
Occupational Safety
15th Floor
400 University Avenue
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

Thank you for your letter of October 7, 1986 concerning the Ministry questionnaire requesting some basic information on joint health and safety committees.

The background to issuing the questionnaire lies in the excellent work which your council did in having the study of joint health and safety committees prepared. In considering this report, it became apparent to me that it was important for the Ministry, which is currently preparing revisions to the Occupational Health and Safety Act (the Act), to have a solid appreciation of the nature and scope of joint health and safety committees which have been established under the Act as well as those that have been established in workplaces which are not required to have committees under section 8 of the Act.

The Ministry developed a short questionnaire which was included in the September mailing by the Workers Compensation Board to all its members. Some 190,000 were distributed. To date the Ministry has received over 8,000 responses. These responses are being reviewed by Ministry officials prior to being entered into the computer system for coding and analysis. Copies will also be sent to the local offices of the Ministry for their review and action where appropriate.

Ministry officials would be pleased to discuss this further with you if there are any questions which you may have.

Sincerely,

Sincerely,

WILLIAM WRYE
Minister

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

April 15, 1987

Dr. D. R. McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 11th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

My officials have completed their review of Advisory Memorandum 86-II, Concerning the Establishment and Functioning of Joint Health and Safety Committees in Ontario, and I am now prepared to respond to Council's advice.

I am pleased to note the many positive results of Council's evaluation of joint health and safety committees (JHSC) in Ontario. The evaluation also brought to light some problems associated with the structure and functioning of JHSCs. I believe that the recommendations in Advisory Memorandum 86-II will be of considerable assistance in addressing these problems.

The response of staff of the Occupational Health and Safety Division, to the recommendations of Advisory Memorandum 86-II, is as follows.

Recommendation 86-7

The Ministry Inspection Role

that the Minister of Labour review the inspection role of the ministry, particularly with regard to ensuring the establishment of joint health and safety committees and promoting their effective functioning and also with respect to the ministry's overall philosophy of enforcement.

It should be noted that the Consultant's report indicates that the inspectorate has had a positive effect on the establishment and operation of joint health and safety committees. While ministry staff support Council's recommendation with respect to a review of the inspection role, and in fact, this process is already underway, the Ministry would not want to diminish its past successful efforts. As you are aware, the Occupational Health and Safety Division recently underwent a management audit. As a follow-up to that audit, Ministry staff are currently conducting an internal review of the Division's structure and function, with a view to implementing the

recommendations of the external reviewers. An important part of this internal review is an examination of the inspector's role, and in particular, of the appropriate balance between the enforcement and consultative roles of the inspector. Also under review are the effectiveness of cyclical inspections, recruitment standards and qualifications for inspectors, and inspector training.

It should also be pointed out that since 1982, the Occupational Health and Safety Advisory Service of the Ministry of Labour has offered a consultative service to the workplace parties, which includes assistance in forming JHSCs, and in improving Committee structure and function.

Recommendation 86-8

Designated Substances Strategy

that the Minister of Labour review the appropriateness of the current approach to the regulation of designated substances, particularly with regard to the identification and documentation of hazardous materials and chemical substances handled in the workplace.

The existing Designated Substances Regulations (DSR) are under review in light of perceived difficulties in administering the regulations, as well as difficulties of the workplace parties with respect to compliance. In addition, alternatives to single substance DSRs are under consideration, for example, a generic DSR that would address a number of substances.

With respect to the larger issue of a strategy for the identification and regulation of toxic substances in the workplace, Council has suggested that any such strategy should require that a list of all materials handled in the workplace be prepared by the employer for scrutiny by both the Ministry of Labour and the JHSC.

Council's suggestion for the identification and documentation of hazardous materials is addressed in the proposed right-to-know legislation. As you may recall, Bill 101, An Act to Amend the Occupational Health and Safety Act, which was introduced on January 31, 1986, was intended to give workers and the public the right to know about hazardous materials in the workplace. Bill 101 contained a requirement that the employer, in consultation with the JHSC, develop and maintain an inventory of all hazardous materials that are present, used, handled or stored in the workplace. The requirements for distribution of the inventory included posting in the workplace, provision to the JHSC and to the Ministry of Labour.

Bill 101 died on the Order Paper when the House rose on February 12, 1987, however, it is my intention to introduce an amended version of the Bill, as part of the implementation of the Workplace Hazardous Materials Information System (WHMIS) across Canada, and that new bill will retain the requirement for an inventory of hazardous materials in the workplace.

Recommendation 86-9

Training for Joint Health and Safety Committee Members

a) that the Minister of Labour review the techniques and mechanisms used to deliver training programs to joint health and safety committee members and cause the development of such techniques and mechanisms necessary to ensure delivery of training programs to all joint health and safety committee members;

b) that the Minister of Labour ensure that training programs for delivery to joint health and safety committee members include: information on the Occupational Health and Safety Act, information on designated substances regulations and other information relevant to health and safety in the workplace; and,

c) that the Minister of Labour require, through legislation, that joint health and safety committee members receive appropriate training and be paid for time so spent.

and

Recommendation 86-10

Education of Workers and Managers in the Workplace Generally

that the Minister of Labour consider mechanisms to ensure the delivery of programs:

i) to educate workers and managers on provisions of the Occupational Health and Safety Act related to joint health and safety committees; and,

ii) to promote better worker and manager understanding and awareness of occupational health and safety issues.

Ministry staff recognize the need for training and education for JHSC members in particular, and for the workplace parties, generally. Council's recommendations regarding training and education are addressed in the proposed amendments to the Occupational Health and Safety Act. On February 12, 1987, I tabled for discussion, draft amendments to the Occupational Health and Safety Act. The draft bill proposes several additional requirements on the employer, one of which is to carry out prescribed occupational health and safety training programs. Council's recommendations are also addressed, in part, in the proposed right to know legislation. Under WHMIS, employers would be required to provide worker training regarding the safe handling of hazardous materials in the workplace.

Recommendation 86-11

Joint Health and Safety Committee Access to Information on Health and Safety Matters Within the Workplace

that the Minister of Labour take steps to ensure joint health and safety committees have access to pertinent information on health and safety in the workplace, either through legislation or other effective mechanisms.

It is agreed that JHSCs need pertinent information on health and safety in the workplace in order to function effectively. The existing provisions of the Occupational Health and Safety Act in part address this recommendation. Under the Act, JHSCs have the power to obtain information from the employer respecting the identification of potential or existing workplace hazards, and about the health and safety experience and practice in other industries. The proposed amendments to the Act expand the powers of the JHSC to include the right to obtain information from the employer concerning strategies for conducting tests, to be consulted concerning such tests and to be present at their commencement. The proposed amendments also impose a duty on the employer to provide a JHSC with the results of any tests conducted on behalf of the employer or on behalf of an inspector.

In addition, the implementation of the proposed right to know legislation should also provide JHSCs with pertinent information, namely, a list of hazardous materials in the workplace, as well as health and safety information about those materials.

Recommendation 86-12

The Structure of Joint Health and Safety Committees

that the Minister of Labour take steps to amend the Act in order to ensure that joint health and safety committees:

i) have at least two worker members; and,

ii) have two co-chairpersons, one chosen by management members and one chosen by worker members.

Ministry staff support the recommendation respecting the structure of JHSCs. Implementation of the proposed amendments to the Act will address the recommendation. Specifically, under the proposed amendments the minimum size of a committee is changed from 2 to 4 persons; and committees are required to have co-chairmen, one representing workers and the other representing the employer.

Recommendation 86-13

Selection of Worker Committee Members

that the Minister of Labour take steps to enforce provisions of existing legislation that requires worker members of joint health and safety committees to be selected by workers.

The Minister will review existing administrative practices to ensure that proper procedures are being followed in the selection of worker representatives. It is recognized that there should be better compliance with the requirement in the Act that worker members of a JHSC be selected by the workers. The proposed amendments to the Act clarify this requirement; and also give the Minister the authority to issue guidelines for the composition, practice and procedure of committees. Consideration will be given to Council's suggestion that there be a means of verifying the selection of worker members.

Recommendation 86-14

Inspections by Worker Joint Health and Safety Committee Members

that the Minister of Labour ensure that the requirement under the Act for inspections of the workplace by worker members of JHSCs be amended to require monthly inspections, with exceptions to be approved by a Director.

The proposed amendments to the Act address the recommendation by requiring that an inspection of the workplace be made at least once a month.

Recommendation 86-15

Investigation of Work Refusals and Critical Injuries/ Fatalities by Worker Joint Health and Safety Committee Members

a) that the Minister of Labour ensure the development of a clear and concise statement of the roles and responsibilities of committee members in the investigation of work refusals and critical injuries; and,

b) that the Minister of Labour take steps to require that reports on work refusals and critical injuries investigations be discussed at the following committee meeting. In the absence of an agreement between management and worker reports, separate reports may be filed by worker and management members of committees.

Ministry staff agree that clarification of the roles and responsibilities of committee members with respect to investigations of work refusals and critical injuries is needed. Consideration will be given to incorporating such a clarification in the amendments to the Act, or alternately, in guidelines on committee practice and procedure, to be developed by the Ministry.

With respect to part (b) of Recommendation 86-15, Section 8(9) of the Act already provides that worker members of a JHSC, who have been involved in the investigation of a worker death or critical injury, report their findings to the JHSC and to a Director of the Ministry of Labour.

Recommendation 86-16

Preparation Time for Joint Health and Safety Committee Worker Members

that the Minister of Labour take steps to amend the Act to allow worker joint health and safety committee members paid preparation time for meetings.

Ministry staff support the recommendation in principle. Consideration will be given to addressing the issue of paid preparation time in guidelines to be prepared by the Ministry.

Recommendation 86-17

Management-Joint Health and Safety Committee Consultation and Communication

a) that the Minister of Labour take steps to require management to advise and involve joint health and safety committee members regarding all health and safety policy and program developments in the workplaces within which the joint health and safety committee has jurisdiction; and,

b) require management to respond in writing to all written recommendations submitted by joint health and safety committees.

The proposed amendments to the Act place a duty upon the employer to prepare a written policy that addresses the health and safety issues at the workplace, and to develop and maintain a program for the implementation of that policy. Consideration will be given to Council's recommendation that management be required to involve the JHSC in health and safety policy and program development.

Implementation of the proposed amendments to the Act would place a duty on the employer to respond in writing to any recommendations of a JHSC within 30 days. The employer's response shall contain a timetable for implementation of the recommendation where the employer agrees with it, or alternatively the reasons for disagreeing with the recommendation.

Recommendation 86-18

Effective Communication between Joint Health and Safety Committees and Workers

that the Minister of Labour, in order to encourage joint health and safety committees to communicate more effectively with the work force, take steps to:

i) increase the frequency of committee meetings; and,

ii) ensure the posting of minutes within one week after they have been approved.

It is recognized that there should be improved communication between JHSCs and workers. It is proposed that the guidelines for JHSCs, to be developed by the Ministry, address this [illegible].

Recommendation 86-19

Time to Function

that the Minister of Labour take steps to ensure worker members of joint health and safety committees reasonable time to listen to and discuss workers' concerns about health and safety in the workplace.

Ministry staff support in principle the recommendation that worker members of JHSCs have reasonable time to listen to and discuss the health and safety concerns of the workers they represent. The issue of what constitutes "reasonable" time is perhaps best addressed by the workplace parties, with assistance from the Occupational Health and Safety Advisory Service, if necessary.

Again, my thanks to you and your colleagues for the work involved in the preparation of this Advisory Memorandum.

Sincerely,

WILLIAM WRYE
Minister

Advisory Memorandum 86-III

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

March 25, 1987

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

On behalf of the Advisory Council on Occupational Health and Occupational Safety I am pleased to submit Advisory Memorandum 86-III.

Recognizing that the document is brief, I would be pleased to meet with you to discuss any questions you may have.

Yours truly,

D. R. McCalla
Chairman

Encl.

cc: G. Thompson
: Assistant Deputy Minister's Office
: A. Gladstone
: A. Robinson

Advisory Memorandum 86-III to the Minister of Labour March 25, 1987

Concerning Consultation

In 1976 the report of the Royal Commission on Health and Safety of Workers in Mines stated, 'The Commission believes that the objective of a sound balance between self-regulation and legal compulsion based on the constructive co-operation of all parties cannot be achieved within current government policy and traditional industrial practices. It has formulated its recommendations to promote the change it considers necessary for the future well-being of the workers in the mines and plants.'[1] *The Occupational Health and Safety Act* passed in 1978, a response to the debate and controversy surrounding the commission's findings and recommendations, set in place the legislation that now governs occupational health and safety in Ontario workplaces.

The promise of an improvement in the future well-being of workers implied in the royal commission report has, for the most part, gone unfulfilled. Accident and fatality rates reported by the Workers' Compensation Board remain intolerably high. Ministry of Labour inspectors write thousands of orders every year to correct violations of the Act and regulations. This apparent lack of measurable progress at the shop-floor level is evident also in the results of council's survey of joint health and safety committees. Although there may be some room for debate about the conclusions to be drawn from the data, it is clear from the survey that the committee system, as established under the Act, is not adequate. Furthermore, there is no consensus that the internal responsibility system is functioning effectively or that, alone, it can realistically be expected to act as an instrument for change.

The apparent lack of measurable progress at the shop-floor level has been a growing source of frustration to workers and their representatives. Considerable frustration has been experienced by both labour and management in trying to obtain, from the Ministry of Labour, information and interpretation of what is required. Concern has been expressed at the general lack of training of workplace parties and of inspectors. Frustration with the ministry has now escalated to the point where a polarized atmosphere pervades the occupational health and safety scene just as it did in the period leading up to the formation of the Ham commission over 10 years ago.

One obvious manifestation of this polarization has been the withdrawal of organized labour from the formal standard setting process and the apparent lack of any progress on the part of the ministry towards resolving this impasse. Other illustrations of discontent and dissatisfaction include the allegations contained in the OPSEU brief submitted on behalf of ministry inspectors, concerns expressed about the lack of meaningful consultation with all stakeholders and the support given to the Private Member's Bill 149 in the legislature.

It is imperative at this time that there be a major initiative to resolve this conundrum. In February 1987 the minister introduced a draft bill to amend the Act and indicated that he was seeking public comment on the proposals. Council agrees that the legislation needs amendment and that public comments should be sought. However, council believes that, in addition, and in light of the almost 10 years of experience gained since its enactment, a more thorough and comprehensive review and examination of the Act and the administration therefore is needed. The underlying premises of the Act and their implications, together with the administrative philosophy employed in enforcement, are under attack, and the critics cannot, and should not, be ignored. There is a need to restore confidence in the system. An opportunity must be provided for public input and debate on these fundamental issues and concerns before consideration is given to specific proposals for reform.

ACOHOS RECOMMENDATION 86-20

> that the Minister of Labour take the steps necessary to provide a public forum for all interested parties to debate the premises underlying the Act and its enforcement and to consider alternative structures.

Council believes that the eventual response to this public debate must be formulated in a manner that involves the affected parties in a meaningful role. It is council's view that the polarization evident today between government, labour and management is, in no small measure, due to the failure of the Ministry of Labour to build a general consensus in support of its present policies and programs. This, in turn, relates back to the form of consultation that council perceives to have been occurring in recent years. The solicitation of briefs and comments alone is a poor substitute for direct and ongoing dialogue and participation with, and among, the affected parties in the development of the policies, regulations and programs with which they are expected to live. Although council recognizes that it is the minister who is ultimately responsible for the final decisions, it is crucial that these decisions be based upon the best information available with respect to technical content and practicality, and to acceptability and enforceability. Certainly, the prospects for producing something that satisfies the latter criteria are enhanced immeasurably if the parties affected play a role in the formulation of the proposal.

ACOHOS RECOMMENDATION 86-21

> that the Minister of Labour involve the affected parties in the process of resolving concerns about the policies and programs of the ministry and make every attempt to build consensus for proposed solutions.

Reference

1. Government of Ontario *Report of the Royal Commission on the Health and Safety of Workers in Mines* (Ham report), James M. Ham, Commissioner. Toronto: Ministry of the Attorney General 1976, p. 258.

Advisory Memorandum 86-IV

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

June 26, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I am pleased to forward the proposed regulation respecting lead on construction projects for Council's review and comment.

The proposed regulation was developed in response to a request by the Joint Labour/Management Health and Safety Committee of the Construction Safety Association of Ontario. In a 1980 brief to the Ministry commenting on the then proposed designated substance regulation respecting lead, the Committee had strong objections to the proposed designated substance regulations being applied to the construction industry because of the variable conditions that exist at construction sites. The construction industry preferred a "control by procedure" approach. Towards this end, the Construction Safety Association of Ontario has worked with the Ministry in developing the proposed regulation respecting lead on construction projects.

A proposed regulation respecting lead on construction projects was published in The Ontario Gazette on September 14, 1985, and a revised regulation was presented at an open review meeting on January 28, 1986.

I look forward to receiving Council's advice on this proposed regulation in the near future.

Sincerely,

William Wrye
Minister

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

March 31, 1987

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

On behalf of the Advisory Council I am pleased to submit Advisory Memorandum 86-IV. This advisory memorandum contains comments, suggestions and recommendations that result from council's review of the process used to develop the designated substance regulation for lead on construction projects and the related codes.

I hope that the enclosed will be of value to you.

Yours truly,

D. R. McCalla
Chairman

Encl.

cc: : G. Thompson
: Assistant Deputy Minister's Office
: A. Gladstone
: A. E. Robinson

Advisory Memorandum 86-IV to the Minister of Labour March 31, 1987

A Review by the Advisory Council of the Process Used to Develop a Standard Respecting Lead on Construction Projects and Related Codes

INTRODUCTION

In the past, council has conducted its review of the standard setting process leading to the development of designated substance regulations by focusing on three aspects of the process:

1) the consultative process (i.e. whether the public was provided with sufficient time, information and opportunity to comment on and participate in the development and content of the regulation);
2) the analysis of the background documentation (i.e. whether the ministry assembled, reviewed and analysed the available evidence in a reasonable fashion and whether the conclusions reached were compatible with the evidence); and
3) the legal-technical process (i.e. whether the regulation and codes are internally consistent and whether the intent of the ministry is expressed in a clear and unambiguous fashion).

Although council reviewed the same three aspects of the process for developing the proposed Regulation respecting Lead on Construction Projects, the emphasis of council's review varied because of differences in the regulation and in the developmental process.

The major differences are that a designated substance regulation respecting lead filed in 1981 excluded construction and that this regulation that is designed for construction is based on a procedural approach to control and does not contain exposure limits. Other differences will be noted in the relevant sections of the document.

BACKGROUND

A Notice of Intention to Designate Lead was published in June 1980. In response to a request from the Provincial Labour-Management Health and Safety Committee of the Construction Safety Association of Ontario, construction work was specifically excluded from the proposed regulation respecting lead, which was sent to council for review, and from the Regulation respecting Lead, which was promulgated in 1981 (Regulation 536/81).

In 1984 the Construction Safety Association of Ontario (CSAO) submitted a draft regulation for lead on construction projects to the ministry. Ministry officials then consulted with the Ontario Paint Contractors Association and several demolition contractors and visited a site where there was potential for exposure to lead. In July 1985 the ministry met with the CSAO committee, now known as the Joint Labour-Management Health and Safety Com-

mittee. A proposed regulation was published in September 1985. Thirteen briefs were submitted and analysed, and a revised draft regulation was presented at a public meeting in January 1986. One brief was submitted during the 21-day comment period after the public meeting. A schematic representation of the steps in the process of developing the regulation is shown in Figure 1 below.

The proposed regulation was submitted to council for review and comment in July 1986. Following a preliminary review of the proposed regulation and background information, a task force of council sought clarification on a number of issues from ministry personnel at a meeting in January 1987.

The agenda for the meeting, which listed the issues for discussion, is reproduced as Appendix I. Appendix II is a summary of the discussion and responses to questions asked at the meeting.

1. CONSULTATIVE PROCESS

The process used by the ministry to develop the regulation followed the same basic format as that for other designated substance regulations, with one exception, i.e. the first draft was prepared by the CSAO and presented to the ministry at a meeting with the Provincial Joint Labour-Management Committee.* The draft was received by the ministry on the understanding that the affected parties had had input into it, the chance to review it and no major concerns with its contents. The subsequent process used by the ministry was open, and there was ample opportunity for the affected parties and public to comment.

Council noted that the meetings conducted by the ministry did not include meetings with labour and that there had not been significant labour input into the ministry's process. Hence, council's task force sought further information on the process used by the CSAO to develop the draft (see Question 3, Appendix I and the response and discussion in Appendix II). It became apparent from the discussion that there had been a breakdown in communication such that labour had not had significant involvement in the development of the draft. However, it was also apparent that this issue was being brought to the attention of the CSAO and that it was being addressed.

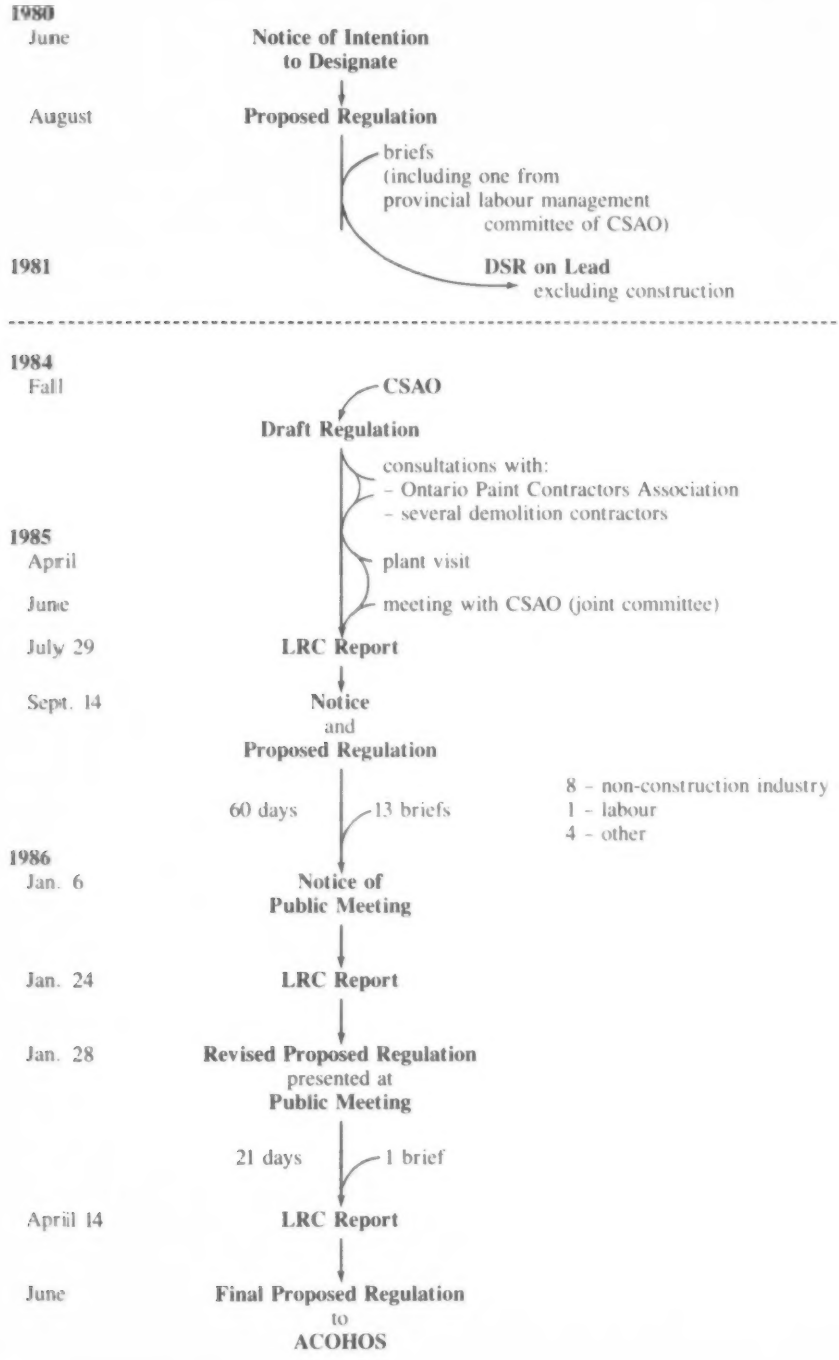
Council has previously noted the advantages of having the affected parties working together to develop regulations and has encouraged the ministry to pursue this approach[1].

As there is no requirement in construction for joint health and safety committees, the procedural regulations have less emphasis on the internal responsibility system, and the occupational health and safety legislation provides little, if any, opportunity for construction workers to be involved in the development of programs and procedures to protect their health and safety at the workplace. For this reason, council considers that it is even more important to ensure that labour as well as management is involved with the development of the regulations.

* The process used to develop the standard for Asbestos on Construction Projects also included the submission by the CSAO of a draft regulation.

Figure 1

PROCESS FOR THE DEVELOPMENT OF THE PROPOSED REGULATION RESPECTING LEAD ON CONSTRUCTION PROJECTS



The CSAO approach is based on the principle that labour and management work together to address health and safety issues. Council hopes that the apparent breakdown in communication in this instance has been addressed and that it has alerted the parties involved that there is a need to monitor and adjust the system to maximize efficiency and to ensure that such occurrences will be prevented in future.

Council stresses the need for the minister to ensure that there is a mechanism for involving the affected parties in the development of regulations.

2. ANALYSIS OF THE BACKGROUND DOCUMENTATION

The proposed regulation respecting lead on construction was based on the same health effects information as Regulation 536/81, and council reviewed this information in 1981.[2] Considerably more information has accumulated in the past six years, and council understood from the background material presented to it[3] that the ministry was reviewing the health effects document in light of the most recent data. According to the background information 'the review of the clinical test requirements for lead specified in Ontario Regulation 536/81, including the blood-lead level,' was scheduled to be completed during the summer of 1986. Council's task force asked about the status of the review and whether decisions had been made on: action levels; the discrepancy between the action levels for males and females; and, whether there would/could be any justification for different action levels in different sectors (Question 2, Appendix I). However, ministry personnel explained that, at that time, the review had not been completed. With respect to the process, it appeared as though the review, when completed, would be available for public comment prior to the ministry's Legislative Review Committee (LRC) making recommendations on the issues identified by council. However, it was unclear from the discussion with ministry personnel whether the review/revised health effects document would be subjected to an external peer review or when the decisions would be available (see Appendix II, Question 2). It was understood from the discussions and background information that the ministry personnel hoped that the promulgation of the construction regulation would go ahead prior to any decisions on these issues and, that if changes were found to be necessary, both regulations (Lead on Construction Projects and Regulation 536/81) would be revised at the same time.

As the action levels are controversial, and extremely important for the protection of workers, council urges the minister to ensure that, following public review and consultation with affected parties, the decisions are made and implemented as soon as possible.

Council also reiterates the importance of having health effects documents subjected to external peer review prior to being used as the basis for decision making (see ACOHOS Recommendation 85/18[4]).

3. LEGAL-TECHNICAL PROCESS

The task force sought clarification on a number of issues relating to legal-technical aspects of the regulation and codes (see Appendices I and II).

Section 2

Section 2(1) states that the regulation applies on a project where there may be exposure to airborne lead during operations or work mentioned in section 4. Section 4 lists and classifies a number of different, but specific, operations. Council noted that there was no provision nor control procedures for operations not listed in section 4. During a discussion of this issue (see Appendix II, Question 4) it was clear that the ministry recognized the need for such a provision to be included in the regulation.

ACOHOS RECOMMENDATION 86-22

> that the Minister of Labour ensure that the regulation contain a provision for protecting workers on a project who may be exposed to airborne lead while performing operations not listed in section 4 of the proposed regulation.

The task force also questioned why employers who established a control program under Regulation 536/81 after the date the construction regulation was filed would be required to comply with the construction regulation for its employees carrying out a project.

In the discussion with ministry personnel (Appendix II, Question 6) it appeared as though the cut-off date was a grandfather clause to reduce the inconvenience of administering two regulations for employers who had already established control programs for their employees. However, council questions:

1) if the procedural regulation is more protective for workers on construction projects, why should some workers be offered less protection?;
2) if the protection offered by the two regulations is equivalent, why should some employers have to administer two regulations?;
3) what is the meaning of the cut-off date or the exemption in section 2(2) when an employer could apply for variance under section 14(1) of the regulation (if the two regulations offer equivalent protection)?

It has been noted in the past that there are some difficulties with the application section of the regulation.[1] These difficulties are exacerbated for contract workers working in an industrial setting. If a company has a control program under Ontario Regulation 536/81, then the employer is responsible for protecting the health and safety of the worker (as specified in sections 4 and 5 of the regulation). However, it would appear that such workers would not be included in the medical surveillance program (see Appendix II, Question 5). It was also assumed that workers protected by such an employer would not be covered under the construction regulation and would not be entitled to a medical examination at the employer's (constructor's) expense.

With the proposed amendment to section 3(3) of Regulation 536/81 it is clear that Regulation 536/81 does not apply if the construction regulation applies. However, a more fundamental concern to council is not that two regulations may apply, but that there may be instances where neither regulation would apply.

It was unclear from the discussion with ministry personnel whether there could be instances where the protection offered to contract workers would not be equivalent to that offered to other workers.

ACOHOS RECOMMENDATION 86-23

that the Minister of Labour ensure that there is a review of the application sections of both Regulation 536/81 (following the proposed amendment) and the proposed regulation respecting lead on construction projects to ensure that workers who may be exposed to airborne lead are protected under one or other of the regulations.

Section 1

The definition of lead in section 1 includes organic compounds of lead; however, there are no operations listed in section 4 that are likely to involve exposure to organic lead, there are no control procedures listed that are designed to protect workers from organic lead compounds and, other than a mention that lead in urine is a more appropriate indicator of exposure to tetramethyl lead (in the Code for Medical Examination), there is no provision for clinical tests for determining exposure to organic lead.

Hence, although the definition of lead includes organic lead compounds, it would appear that the proposed regulation would not cover exposure to organic lead compounds. However, if, as council has recommended, there is a provision for including operations not listed in section 4, exposure to organic lead compounds could be included. In this case, the regulation would need to be revised to include the provision for appropriate control procedures and clinical tests.

It is unclear to council whether exposure to organic lead compounds is likely to pose a hazard to the health of construction workers.

During a discussion of this issue with ministry personnel (Appendix II, Question 10) it was suggested that the definition of lead be amended to exclude organic lead compounds and that guidelines be prepared that outline the precautions necessary to protect workers from organic lead compounds. Also, it would be necessary, in the guidelines, to describe the different clinical tests and action levels appropriate for workers exposed to organic lead compounds.

ACOHOS RECOMMENDATION 86-24

that the Minister of Labour ensure that the potential for construction workers being exposed to organic lead compounds is reviewed.

ACOHOS RECOMMENDATION 86-25

that the Minister of Labour ensure that it is clear whether or not the Regulation respecting Lead on Construction Projects applies to organic lead compounds, and, if it applies, that the regulation is appropriate for the protection of workers exposed to organic lead, and, if it does not apply, that the necessary steps are taken to ensure the protection of such workers.

Section 6

Considering the conditions at construction sites and the requirement in section 6(3) that 'facilities for washing a worker's hands and face should be made available to a worker at the project . . .', council considers it important that it is specified that the facilities be appropriate, e.g. that they should include hot water and soap.

With respect to section 6(4), prohibiting eating, drinking, chewing or smoking in the work area where a Type 1, 2 or 3 operation is being performed, the task force asked how workers not performing the operations would know the areas where such operations were being performed.

The ministry personnel explained that in section 6(1) there was the requirement that instruction and training be provided to every worker and that that should include bystanders. The discussion of this issue (see Appendix II, Question 7) included the advantages and disadvantages of requiring that signs be posted to indicate areas where there is potential for exposure to airborne lead.

As many workers, possibly employees of different employers, may be working in or passing through areas where there is potential for exposure to airborne lead, and as it would be difficult to provide uniform instruction and training to all workers in or around the area, council considers it important that signs be posted to alert workers that there is the potential for a hazard so that workers can seek further information if necessary.

Section 8

Section 8(4) prohibits the use of compressed air for cleaning up dust and waste from Type 2 operations. The task force asked why the prohibition was not extended to Types 1 and 3 operations. The ministry personnel explained that the only Type 3 operation where dust or waste would present a hazard was 'sand-blasting surfaces likely to contain lead' and that respirators were required for all persons in the area of the operation (see Appendix II, Question 8).

As the use of compressed air and dry sweeping makes dust airborne, council recommends that, where there is the potential for dust to contain lead, neither dry sweeping nor compressed air should be used for clean-up.

ACOHOS RECOMMENDATION 86-26

> that the Minister of Labour ensure that it is clear in the regulation that compressed air and dry sweeping should not be used for the clean-up of dust or waste that could contain lead.

Council also noted that the regulation does not contain any provision or requirement for the removal of dust from clothing. It is a concern that dust containing lead could be a significant source of exposure to both the worker and the worker's family; hence, if this issue is not addressed in the regulation, council considers it important that it be dealt with in detailed guidelines, which should be available at the time the regulation is filed.

Section 9

'Burning of a surface having a coating which contains or is likely to contain lead' is listed in section 4 as a Type 3 operation. The controls, work procedures and practices required for Type 3 operations are described in section 9. Council noted that 'burning – indoors or in a confined space' is dealt with in section 9(2) and 'burning (other than in a confined space) during demolition' is dealt with in section 9(3). However, there are no controls, measures or procedures listed for burning outdoors. This issue was brought to the attention of ministry personnel (see Appendix II, Question 4), and there was an undertaking that the appropriate revision would be made.

Section 10

Council noted that the proposed regulation (dated April 1986),submitted to council for review, did not contain a copy of Form I. However, the task force was assured that Form I would be attached to the regulation when it is filed (Appendix II, Question 1).

Section 11

In July 1985 the Legislative Review Committee recommended wording for the regulation that would allow an inspector to order a medical examination of a worker. However, it appeared as though the proposed regulation did not contain such a provision. When the task force asked for clarification (Appendices I and II, Question 12), ministry personnel explained that there were plans to upgrade section 11 to make it consistent with Ontario Regulation 654/86 and that this would involve adding a clause to allow the Chief Physician to order a medical examination. It was explained that, with the revision, an inspector could order a medical examination if he had the authority of the Chief Physician.

Because the provision for medical examinations recently introduced into the designated substance regulations and Regulation 654/86 is a substantive issue with broad implications, council has decided to consider the issue separately from its review of the regulations.

Section 13

Section 13(1) contains the requirement for the examining physician to advise the employer and the Chief Physician whether a worker is unfit or fit with limitations. The task force asked ministry personnel why this provision applied only 'where a worker is continuing to work in lead exposure' (see Appendices I and II, Question 13).

Workers on construction projects tend to be very mobile; record keeping is difficult and the types of operations performed vary from day to day. Under these circumstances it would be difficult for the examining physician to determine whether a worker would be continuing to work in lead exposure. It is also very important that the employer be alerted to a situation that has led to a worker being over-exposed so that the operations can be investigated and adequate controls can be instituted or precautions taken prior to other workers being assigned to perform the operations.

that the Minister of Labour ensure that section 13(1) is amended to ensure that the employer and Chief Physician are advised whether a worker, because of a condition resulting from exposure to lead, is fit with limitations or unfit.

Section 14

Section 14(1) allows for variance in the measures and procedures used if the variance affords adequate protection and approval is obtained from the Director. The subsection applies to measures and procedures in both the regulation and the codes. The second part of section 14(1)(a) applies specifically to the codes. Section 14(2) allows for variance in the Code for Determination of Lead in Blood without requiring the Director's approval and without the requirement to demonstrate that the variance exceeds the factors of accuracy and precision required in the code.

The task force questioned, for the following reasons, the rationale for this section applying to the codes:

1) the only code that specifies factors of accuracy and precision is the Code for Determination of Lead in Blood, which is, in section 14(2), exempt from section 14(1);
2) there are a finite number of laboratories performing lead in blood determinations by standardized methods and the physician determines the need for these determinations and where they will be performed; and
3) if there is no requirement to follow the code, why is the code part of the regulation?

The discussion of these issues with ministry personnel is reproduced in Appendix II, Question 14.

Council considers it important that there be a provision for variance in the measures and procedures required in the regulation. However, if medical examinations and blood-lead determinations are not mandatory and, if there is no requirement to follow the codes, council questions the need for the codes to be part of the regulation and suggests that the information, presently contained in the codes be referenced and explained in a guide that should accompany and explain the regulation.

It is noted that the recent designated substance regulations, which do not contain a provision for mandatory medical surveillance but which include the provision for medical examinations, do not have codes for medical examinations or clinical tests. However, if the codes are not part of the regulation in this case, the issue of action levels would have to be considered.

Codes for Medical Examination and Determination of Lead in Blood

During the discussion with ministry personnel the task force raised two questions about the codes:

1) the rationale for deleting 'ensuring fitness for exposure to lead' from the objectives of the code. The reason cited by the ministry personnel was

that the examinations are not preplacement or periodic, hence they are not for ensuring fitness for exposure (see Appendix II, Question 9). However, council observes that the examination and clinical tests are to determine fitness for continued exposure to lead;

2) the reason for using different units for the blood-lead levels and action levels in the codes, i.e.:

In the Code for Determination of Lead in Blood:
First Method
Section 6(3) 'the concentration . . . must be expressed in *μg/dL*.'
Section 8 'the detection limit was found to be 0.05 *μg/mL*.'
Second Method
Section 6 '. . . the recommended convention (SI system) is *μmol/L*.'
In the Code for Medical Examination:
Section 3(1) the action levels are specified as *μmol/L*, with conversions to *mg/L*.

This issue was discussed with ministry personnel (see Appendix II, Question 11).

As the SI units are the internationally recommended convention, council recommends that SI units should be used consistently throughout the codes and guide, and, if necessary, a conversion table (including more traditional units) be appended.

With respect to other clinical tests, council notes that there is no mention of the zinc protoporphyrin (ZPP) test. It appears from the literature that the ZPP test is a better indicator of lead toxicity following acute exposure to lead. It is recognized that the value and use of the test need to be explained and, if used or recommended, new action levels would need to be defined. Council suggests that this information be included in the guide.

In summary, council reviewed the Regulation respecting Lead on Construction Projects and related codes and identified a number of issues. Council commends the approach of having the affected parties work together to develop a draft regulation in addition to the ministry providing an opportunity for public comment and conducting a public meeting to explain any contentious issues and changes made since the draft regulation was published. Although council noted that there was an unfortunate breakdown in communication prior to the ministry receiving the draft, council understands that this issue is being addressed by the affected parties. Council emphasizes the importance of having an effective mechanism for the affected parties to, together, participate in the process of developing regulations.

As the background technical information was the same as that used for Ontario Regulation 536/81, and as the review of the more recent health effects data was not completed, council was not in a position to comment on this aspect of the process other than to reiterate the importance of peer review of technical documents and the need for comment and consultation prior to decisions being made.

With respect to the legal-technical process, council identified a number of issues. These issues were primarily points of interpretation, possible incon-

sistencies and omissions. Clarification was sought from ministry personnel on most of the points, and the ensuing discussions are summarized in Appendix II. The document describes council's position on the various issues including: the need for a 'catch-all' clause, the need for clarification regarding organic lead compounds, the issue of medical examinations and the need for clarification of the application sections of both Ontario Regulation 536/81 and the proposed regulation for construction.

References

1. Advisory Memorandum 85-III: A Review by the Advisory Council of the Process Used to Develop a Standard for Asbestos on Construction Projects and in Buildings and Repair Operations and Related Codes. *Advisory Council on Occupational Health and Occupational Safety Eighth Annual Report, April 1, 1985 to March 31, 1986.*

2. Advisory Memorandum 81-I: A Review by the Advisory Council of the Process Used to Develop a Standard for Lead and Council's Evaluation of the Criteria Utilized to Assess the Hazard of Lead Exposure in the Workplace. *Advisory Council on Occupational Health and Occupational Safety Fourth Annual Report, April 1, 1981 to March 31, 1982, p. 29.*

3. The Report to the Advisory Council on Occupational Health and Occupational Safety on the Proposed Regulation Respecting Lead on Construction Projects. *Ministry of Labour, Occupational Health and Safety Division, June, 1986.*

4. Advisory Memorandum 85-V: A Review by the Advisory Council of the Process Used to Develop a Standard for Arsenic and Council's Evaluation of the Criteria Utilized to Assess the Hazard of Arsenic Exposure in the Workplace. *Advisory Council on Occupational Health and Occupational Safety Eighth Annual Report, April 1, 1985 to March 31, 1986, p.141.*

APPENDIX I

Issues for Discussion at Meeting with Ministry Personnel Scheduled for January 27, 1987

Questions

1. Should there be a copy of Form I appended to the regulation?

2. What is the status of the review of 'the clinical test requirements for lead specified in Ontario Regulation 536/81 and blood-lead levels' being performed by Special Studies and Services Branch? Have any decisions been made as a result of the review with respect to:
   a) the level, or
   b) the discrepancy between levels for males and females,
   c) the need for the levels to be the same for the construction regulation?

3. What was the process used by the CSAO for developing the draft regulation? Is there any documentation of this process? Is there any documentation of the communication between the CSAO and/or joint labour management committee?

4. Is there a provision for classifying procedures not listed in the regulation or is there, alternatively, a general duty to ensure control of procedures likely to cause a risk to a worker's health resulting from exposure to lead?

5. Would a worker on contract to a company with a control program for lead required under Regulation 536/81 be included in the medical surveillance program?

6. Why are industries that establish control programs under Regulation 536/81 after the construction regulation is filed not exempt from the requirements of the construction regulation?

7. How do people not performing the specific procedures listed in the proposed regulation know not to eat, drink, smoke or chew in the area where these procedures are being performed?

8. What is the rationale for limiting the requirements in section 8(4) to Type 2 procedures? Why not Types 1 and 3 as well?

9. What was the rationale for deleting 'ensuring fitness for exposure to lead' from the objectives of the medical examination while the important clinical test is 'to aid in the assessment of a worker's fitness for and continued exposure to lead'?

10. Is exposure to organic lead compounds likely to pose a hazard to the health of construction workers?

11. Is there a reason for using different units for the blood-lead levels and action levels throughout the codes and the regulation?

12. With the wording in section 11, can an inspector require a worker to undergo a medical examination and clinical test to determine the blood-lead level at the employer's expense?

13. The task force would like clarification of section 13(1) and the instances when the Chief Physician and employer would not be informed that a worker has a condition resulting from exposure to lead.

14. What is the rationale for section 14?

APPENDIX II

Summary of the Responses to 'Issues for Discussion' at the January 27, 1987 Meeting with Ministry Personnel

Question 1

Ministry personnel clarified that Form I would be appended to the regulation and that it is the ministry's intention to have copies of Form I available to affected parties both by distribution through the ministry mailing list and in the District Offices.

Question 2

It was explained that the review referred to in Question 2 should be completed by the end of February 1987 and that it was planned to circulate the review, in the form of a health effects document, to the directors of the branches for their comments. The document would become public and widely distributed, possibly for review. It was pointed out that the review would be addressing issues 2a), the action level and 2b) the justification (or not) for a different level between men and women. However, issue 2c) would be a consideration for the Legislative Review Committee (LRC). It was clarified that the LRC would make decisions on all three issues following consideration of the data and recommendations contained in the health effects document.

In response to questions, it was explained that the document would summarize the information in the original health effects document and would review the more recent literature and that any peer review would, initially, be within the ministry.

With respect to the timing of any decisions based on the review, it was anticipated that the LRC would consider the recommendations after the public comments had been analysed, i.e. about August 1987 (allowing for a two-month public comment period).

There was a brief discussion about this process. As the decisions would not be available for several months, ministry personnel expressed the hope that the regulation could proceed and, if necessary, both the construction regulation and Regulation 536/81 could be amended at the same time.

Question 3

The question was dealt with in two parts:

1) how the CSAO develops draft regulations; and
2) the interactions between CSAO and the ministry.

The process used by the CSAO for developing draft regulations was described and reference was made to the specific case of lead where appropriate:

- the first phase is information gathering, e.g. monitoring exposure data, plant visits and obtaining input from labour, management and technical people. This is carried out by the CSAO staff;

- there is some liaison with the ministry at this stage;
- the CSAO drafts a regulation;
- presents it to the Joint Labour Management Committee (JLMC) (often requiring several meetings and possibly involving the ministry at some stage). For lead, the draft regulation was presented to the Joint Labour Management Committee and the ministry in July 1985;
- the JLMC reviews the draft and suggests revisions: For lead, several minor revisions were suggested; the ministry had correspondence from them that there were no major difficulties;
- the revised draft regulation is presented to the ministry;
- the ministry then continues with its process of consultation, publication, call for comment, public meeting, etc.

It was explained that there was no formal documentation of the CSAO process, but that it was the same process used for drafting the safety regulations. The documentation of the meetings between the CSAO and the JLMC is in the form of detailed minutes.

A task force member pointed out that the process described was the ideal; however, for lead, there had been an unfortunate breakdown in communication and labour had not been involved. Following the July 1985 presentation there was no review by the committee and there was no involvement of the regional committees. The matter had been drawn to the attention of the the CSAO and was being addressed. It was pointed out that the parties had no major complaints with the lead regulation, but consider that there was the need for a better system so that labour is involved with the CSAO at the beginning and throughout the process of developing the draft.

Ministry personnel expressed surprise at the fact that the JLMC had not reviewed the draft and referred to the following quote from the minutes of the July 10th, 1985 meeting of CSAO:
'It was agreed to send copies of the proposed regulation to all regional trade and labour management committees for comment.'

While stressing the importance of this communication prior to the draft being submitted to the ministry, ministry personnel noted that during the ministry's process there was ample opportunity for the affected parties to review and comment on the proposed regulation.

It was explained that the ministry receives the draft regulations on the understanding that, unless it hears otherwise, neither labour nor management has major concerns.

The task force reiterated the value of the CSAO process and the importance of allowing the parties to, together, adjust the system to make it more effective, and that the apparent breakdown in communication indicated that there was a need to tighten the system.

There was a brief discussion about the one labour brief submitted to the ministry in response to the call for comments on the proposed regulation. It was clarified that it was from the Thunder Bay and District Labour Council, stating only that there should be a total ban on the use of lead.

Question 4

In response to this question, it was explained that there was a 'catch-all' clause in the asbestos in construction regulation (the first procedural regulation). The provision was that all operations with the potential for exposure to asbestos that are not otherwise classified should be treated as Type 2.

It was clarified that although there was no such provision in the draft lead in construction regulation, the need for a 'catch-all' provision would be considered.

In the ensuing discussion the value of the 'catch-all' provision was noted. It was agreed that not all operations could be covered in the classification list. Various means of including a 'catch-all' provision were discussed. It was pointed out that the corresponding provision in the asbestos in construction regulation had been considered the best and, legally, the simplest for asbestos, and a similar provision would be considered for lead. However, ministry personnel indicated that comments and/or suggestions would be welcome.

The task force pointed out that according to section 2, the regulation only applies for the procedures listed in section 4; hence, either the 'catch-all' would need to be in section 4, or section 2 should be amended.

The task force noted that, in section 4 'burning' was classified as a Type 3 operation. The provision for controls of burning indoors or in a confined space was included in section 9(2) and burning in demolition, in section 9(3). However, there did not appear to be provision for controls for burning outdoors.

Ministry personnel noted the gap as an oversight and explained that the intention was that the same controls would apply.

It had also been noted by the task force that welding in demolition was not addressed, but it had been concluded that such an operation was not likely to be performed.

Question 5

Ministry personnel noted that, in the lead and mercury regulations for the mining and industrial sectors, the employer has the obligation to ensure that sections 4 and 5 are complied with for the employees of another employer. Hence, the employer would not be required to include a contract worker in a medical surveillance program. It was pointed out that the wording for the other, more recent designated substance regulations, was different and not as specific.

There was a discussion about whether, under section 4(5) of Regulation 536/81, the contract employee could be required to undergo medical surveillance if the employer wished. It was pointed out that section 4(5) states that the worker work in compliance with the *work practices* and *hygiene practices* of the control program, not the complete control program.

This led to a discussion of whether a contract worker, covered under Regulation 536/81, but exempt from the construction regulation, could request a medical examination at the expense of the employer. It was pointed out that a worker could always have a medical examination; the issue was who would pay.

Ministry personnel reported that a committee, established in the fall of 1986 to review the designated substance regulations and recommend generic changes where necessary, was attempting to address the issue of contract workers and whether or not they are included in control programs. It would seem that, at present, contract workers are not offered the same degree of protection, with respect to medical surveillance, as workers in the industrial, mining and construction sectors. It was pointed out that it is administratively difficult to include contract workers in the medical surveillance program if they are transient workers who are not at the workplace for long.

There was a suggestion that, rather than distinguishing between industrial and construction sectors for the purposes of the regulations, the distinction should be between full-time workers and contract workers.

There was a question about the protection of workers at a workplace where construction creates the risk of lead exposure. It was pointed out that the construction regulation would apply to all the workers on the project.

Question 6

In response to this question, it was explained that the approach taken was similar to that for the asbestos in construction regulation. In the case of asbestos in construction, the regulation would apply to everyone except those involved in manufacturing and mining. Many large companies who had already established control programs under the existing regulation had objected to having to comply with a new regulation and, in some cases, to discontinue an existing control program. Hence, it was decided that companies with a control program in place at the time the construction regulation was filed could continue to operate under the control program. However, all other maintenance, repair, construction projects, etc., should comply with the construction regulation because it was considered that a procedural regulation was better suited to protect workers performing the operations listed.

There was a discussion about which regulation would apply for a construction project in a company with an existing control program. It was clarified that it depended on whether the workers were employees of the company or of a construction company.

Question 7

In response to Question 7, it was explained that in section 6(1) there is the requirement for training and instruction to be provided for *every* worker, and that that included bystanders as well as workers performing the operation. It was noted that the asbestos in construction regulation contains the provision for warning signs, and the proposed lead regulation only requires signs to restrict access to areas where sand-blasting is in progress. The

rationale was – signs for restricting access and training for all other precautions.

The task force pointed out that, with a mobile and transient work force, training is often difficult and signs warning of the hazard would probably be more effective and would stimulate workers to ask questions about the hazard.

Ministry personnel indicated that the inclusion of a provision for warning signs would be considered.

There was a discussion about the pros and cons of requiring warning signs. The cons included:

- workers do not read signs; hence signs would not be effective;
- the nature of projects – often the potential for exposure to lead would be only for a short period of time;
- being specified in the regulation (as opposed to suggested in a guide) would not allow for flexibility; and
- difficult to enforce.

As well as the pros cited above, there was:

- workers in an area may be employees of several different contractors. Those not creating the hazard may or may not even be aware of the operations;
- the worker would be alerted and could made inquiries.

It was pointed out that, at present, there is a duty, but the regulation does not spell out how to fulfil the duty. Guidelines can suggest ways of fulfilling the duty and are much easier to amend and update than regulations.

Question 8

Ministry personnel explained that:

- there is the requirement for respirators to be worn for the clean-up of sand-blasting operations (Type 3, while for clean-up after Type 2 operations no respirator is required);
- access to sand-blasting areas is restricted;
- compressed air is used in sand-blasting;
- only one operation in Type 1 is likely to generate dust.

It was pointed out that if council recommended that compressed air not be used in the clean-up after other operations, amendments would be considered.

There was a brief discussion about the use of compressed air and dry sweeping and how settled dust would be made airborne. It was pointed out that it would be simpler and more meaningful for the prohibition to be extended to the clean-up of all types of operations.

Question 9

It was explained that the 'ensuring fitness to work' was left out of the code because there are no preplacement or periodic examinations, i.e. the medical examinations are only when a problem is suspected.

In response to a question from the task force about whether the 'and' should be dropped from section 3, Clinical Tests, it was explained that in section 13(1) assessment for further exposure may be needed once the worker has been examined.

Question 10

It was explained that the ministry had considered this issue and the only instance where there was the potential for exposure to organic lead compounds was during dismantling of facilities that had been used for manufacturing or packaging organic lead. At the time, there was only one such company, possibly a couple, in the past so the risk of exposure would be very small. It was pointed out that if a 'catch-all' phrase were added to section 4, then such operations could be included. Ministry personnel explained that a similar situation arose when the exposure of construction workers to mercury was considered. The only instance when exposure to mercury was considered likely was during the demolition of chlor alkali plants or possibly old dental offices. In these cases, it was proposed to prepare guidelines and amend the industrial regulation to refer to the guidelines. It was suggested that organic lead in construction could be dealt with in a similar way.

Ministry personnel noted that council's advice would be appreciated on whether the regulation for construction should be restricted to inorganic lead compounds.

It was pointed out that the definition of lead in section 1 includes organic compounds of lead, and there is a reference to exposure to tetramethyl lead in section 3(1) of the code. However, there were no operations listed or provisions for the control of exposure to organic lead compounds. It was suggested that if the regulation was restricted to inorganic lead compounds, detailed guidelines could be drawn up to provide for the infrequent instances when there was potential for exposure to organic lead compounds.

Question 11

It was explained that, in the Code for Medical Examinations, the blood-lead levels were expressed as μmol/L and followed by mg/L values in brackets because different laboratories reported the blood-lead results in either of these different units.

Ministry personnel added that when the code was drafted, the SI units were not uniformly used. However, now that they are, it was suggested that only SI units be used.

Question 12

Ministry personnel responded that, according to section 11 in the proposed regulation, an inspector could not initiate a medical examination (at the expense of the employer). There was, however, the intention to upgrade this section. It was proposed that section 11 be consistent with Regulation 654/86 (Regulation respecting the Control of Exposure to Hazardous Biological and Chemical Agents) and contain a provision for the Chief Physician to order a medical examination (hence, an inspector with the authority

from the Chief Physician could order a medical examination), the requirement for notification of the other party and the provision for dispute resolution.

In response to a question about who would resolve the dispute if the inspector ordered the medical examination, it was pointed out that anyone can appeal an order, and, if the parties cannot resolve it, then it goes to the Appeals Director.

With respect to whether a worker or employer can request a medical examination outside the requirements of the designated substance regulations, it was explained that they could, but that the ministry would not be involved. It was clarified that a worker can always go to his or her family physician. The issue was whether the employer would have to pay if the medical examination initiated a Workers' Compensation Board claim. It was considered that Ontario Health Insurance Plan (OHIP) determines whether it or the Workers' Compensation Board should pay.

The task force raised the issue of an employer's right to request a medical examination of the worker since the employer is responsible for the health and safety of the worker. In cases other than designated substance regulations, it was considered that provisions under industrial relations, labour relations, collective agreements, etc. would apply.

Question 13

Ministry personnel responded that if the examining physician finds limitations or a worker unfit, the Chief Physician has to be informed, and he ought to inform the employer so that notification can be made under section 26(2) of the Act. However, with the wording of section 13, these requirements only apply if the worker continues to work in lead exposure. It was suggested that the wording should be changed.

It was noted that if the examination is triggered under section 11, the employer should be informed. However, if the worker obtained a medical examination from his or her family physician, there is no requirement that the physician report to the employer unless requested by the Workers' Compensation Board to do so. It was clarified that if the examination were referred under a designated substance regulation, there had to be a report.

There was further discussion of this issue and the fact that there is only a moral duty for a family physician to report an industrial disease (if not requested by the Workers' Compensation Board). There was a suggestion that section 53 of the *Workers' Compensation Act* should be amended.

Question 14

In response to this question, it was explained that section 14(1) allows for variance in procedures, providing that the Director is notified and approves of the variance. As the regulation cannot anticipate and specify procedures for all circumstances, the importance of this provision was stressed. It was explained that, for the procedural regulations for construction, there is no internal mechanism of control or the requirement for joint health and safety

committees, hence the importance of notifying and getting the approval of the Director.

The task force pointed out that the only code that could be included in section 14(1) was the Code for Determination of Lead in Blood, which was excluded from section 14(1) in section 14(2).

The need for section 14 in the regulation was questioned because the blood-lead levels are requested by the doctor and performed by a limited number of laboratories with standardized procedures; hence the employer would have little or no control over the testing procedures and the tests are not mandatory.

There was a discussion about removing the code from the regulation and/or restricting section 14(1) to the variance in procedures specified in the regulation (not the code). It was noted that if either were deleted, the requirement to comply with the code(s) would also have to be deleted [section 12(3)]. It was also pointed out that section 14(1)(a) appeared to be directed exclusively to variance in the codes. The ministry personnel undertook to amend section 14.

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

April 22, 1987

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

Thank you for transmitting Advisory Memorandum 86-IV on the review of the process used to develop the designated substance regulation for lead on construction projects and the related codes.

Please thank the members of the Council for their efforts in preparing this advice and inform them, on my behalf, that a more detailed response will follow once my officials have had the opportunity to thoroughly review the document.

Sincerely,

William Wrye

William Wrye
Minister

cc: G. Thompson
A. Gladstone
A. E. Robinson

Follow up Correspondence to Previous Advisory Memorandum 83-III

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

August 7, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
15th Floor
400 University Avenue
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

This is in response to "Advisory Memorandum 83-III concerning Health Surveillance and Health Screening in Occupational Health Programs: the Physician in Health Surveillance."

After receipt of council's memorandum and with the consent of the chairman, the advice of Advisory Council was sent out to key interested parties for their comment. Several groups including the Canadian Board of Occupational Medicine (CBOM), the Ontario Medical Association (OMA) and the Ad Hoc Industry group representing several major corporations, responded. I regret that the Ontario Federation of Labour has not submitted comments despite efforts made by my predecessors and by me to secure a response. I believe that it would be inappropriate to delay my response for any additional time.

Following a careful review of Council's memorandum, and responses of interested parties, I am pleased to report that the Ministry has agreed with the five recommendations made by Advisory Council.

Recommendations 1 and 2 which deal with the right of the worker to be examined by a physician of his or her choice and the need for results to be reviewed by one co-ordinating physician (where numbers of workers warrant this), will be incorporated into appropriate regulations as they are developed, and existing regulations will be amended appropriately.

Recommendation 3 deals with the steps the Ministry should take to ensure that workplace parties understand the role of the co-ordinating physician and the method of selection and appointment. The Ministry will incorporate the method of selection and appointment in the regulation and develop appropriate explanatory material for use by the workplace parties. The Ministry will publish shortly a notice proposing amendments which incorporate these recommendations. Additional training for the inspectorate will be provided so that they may assist the parties in understanding their responsibilities in this important area.

Recommendation 4 suggests that the Ministry continue to fund educational programs for physicians. Since 1978, the Ministry has funded courses for physicians and other professionals at the diploma and masters levels, including:

- McMaster University
  - "Diploma Program in Occupational Health and Safety"
- University of Toronto
  - "Master of Health Science - M.H. Sc."
  - "Master of Science - M. Sc."
  - "Diploma of Industrial Health - D.I.H."
  - Continuing Education in Occupational Health"

In 1980, the Ministry provided funding for the establishment of a clinical service for the education of physicians in the diagnosis, management and prevention of workplace - related diseases at St. Michael's Hospital in Toronto. The clinic is operated as part of the teaching faculty in the Occupational and Environmental Health Unit of the Faculty of Medicine at the University of Toronto.

Additionally, funding has been provided for the following programs for undergraduate medical students and practising physicians:

- McMaster University
  - "Occupational Health for Undergraduate Medical Education: Innovative, Problem Based Materials"
  - "Long Distance Instruction in Occupational Health and Safety" an advisory service designed to meet the needs of physicians providing occupational health services on a part-time basis.
- Queen's University
  - "Occupational Health" offered to second year medical undergraduates by the Queen's Occupational Health and Safety Resource Centre funded by the Ministry.

Under the Interprovincial Lottery Awards Program, medical students and practising physicians have taken advantage of bursaries to help defray educational expenses while attending post graduate programs in occupational health and safety.

The Ministry-funded occupational health and safety resource centres, located at five universities, continue to act as information and advisory sources for practising physicians.

Recommendation 5 suggests that the Ministry encourage professional bodies to continue their efforts to develop certification programs for occupational health physicians. The Ministry has encouraged and supported the certification of occupational physicians by the Canadian Board of Occupational Medicine and will continue to encourage that organization and the Royal College of Physicians and Surgeons in its efforts to develop specialization programs to increase the competence of the physicians practicing occupational medicine.

ILO Convention number 161 and the resulting report and recommendation number 171 reflect the role of the physician in the delivery of occupational health services, together with the recommendation of the federal Task Force on Health Surveillance of Workers, and Advisory Council's recommendations have been of great value to the Occupational Health and Safety Division's efforts to establish a reasonable framework within which a physician may carry out aspects of the health surveillance program for the protection of workers. Please convey my thanks to the committee for their continuing efforts.

Yours sincerely,

William Wrye
Minister

Follow up Correspondence to Previous Advisory Memorandum 85-II

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

April 14, 1986

Dr. D. R. McCalla
Chairman
Advisory Council on Occupational Health and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

My officials have completed their review of Advisory Memorandum 85-II, on the Classification of Health Surveillance, Health Screening and Biological Monitoring Procedures in Workplace Biomedical Surveillance Programs, and I am now prepared to respond to Council's advice.

I support Council's view that health screening, health surveillance and biological monitoring procedures should be regarded as complementary to good industrial hygiene procedures and should not be seen as a substitute for proper engineering controls in the work place. Council has correctly pointed out that the selection of procedures for inclusion in work place biomedical surveillance programs should be carried out in a systematic and coordinated fashion. I believe that the classification criteria set out in Advisory Memorandum 85-II will be of considerable assistance in the evaluation of biomedical surveillance procedures.

The response of staff of the Occupational Health and Safety Division, to the recommendations of Advisory Memorandum 85-II, is as follows:

Recommendation 85-6

> "That the Minister of Labour, in consultation with the Ontario Human Rights Commission, take the necessary steps to ensure that preplacement medical examinations are not conducted until after a job applicant has received a conditional offer of employment."

Ministry staff agree with the approach advocated in this recommendation. Members of the Occupational Health and Safety Division are in contact with the Ontario Human Rights Commission, on an ongoing basis, to ensure that the requirements of occupational health and safety legislation are consistent with the requirements of the Ontario Human Rights Code.

The Ontario Human Rights Commission approved a new policy in relation to pre-employment medical examinations, on January 21, 1986. One feature of the new policy is that pre-employment medical examinations will be considered "reasonable and bona fide" only if conducted after a written offer of employment has been extended.

Future regulations will conform with the Commission's new policy on pre-employment medical examinations and the Ministry of Labour will ensure that where pre-employment medical examinations are required under existing regulations, employers are aware that these examinations are not to be conducted until after a written offer of employment has been extended.

Recommendation 85-7

> "That the Minister of Labour appoint an advisory committee of independent medical and scientific experts under subsection 11(1) of the Occupational Health and Safety Act to classify, according to the criteria set out in this memorandum, the biomedical surveillance procedures contained in the medical codes of current Designated Substance Regulations, including those to be set out in the medical codes of any future regulations regarding the control of hazardous substances in the workplace."

The recommendation has considerable merit in that it would lead to a more systematic and rigorous evaluation of mandatory work place biomedical surveillance procedures than has previously existed. However, as Council is aware, the Ministry is already considering alternate approaches to medical surveillance requirements in designated substance regulations. The Health Studies Service of the Ministry of Labour, whose mandate is to provide advice and make recommendations in relation to biomedical surveillance procedures to be incorporated in designated substance regulations, is reviewing the classification criteria suggested by Council with a view to applying the criteria to procedures to be set out in the medical codes of future regulations. Consideration will be given to a re-evaluation of the biomedical surveillance procedures in existing designated substance regulations, using the classification criteria suggested by Council; however, I am sure that Council appreciates the complexity of such a re-evaluation, given that many employers have already established medical surveillance programs to meet the requirements of the existing regulations.

Finally, I am not certain that the evaluation and classification of biomedical surveillance procedures need to be carried out by an advisory body of independent medical and scientific experts, as opposed to experts within the Ministry of Labour, especially since, as indicated in the response to Recommendation 85-8, any in-house evaluation would be subject to public scrutiny; however, I will give due consideration to Council's advice.

Recommendation 85-8

> "That the Minister of Labour take the necessary steps to ensure that the advisory committee's advice to him is circulated to interested and affected parties prior to his making a decision concerning the classification of any biomedical surveillance procedures set out in the medical codes of current or future regulations for the control of hazardous substances in the workplace."

The existing process for the development of designated substance regulations already allows ample opportunity for interested and affected parties to comment on biomedical surveillance procedures, both at the Notice stage and following publication of the proposed regulation. The regulatory development process would provide for discussions on whether biomedical surveillance procedures should be mandatory or not, and where there is a code for medical surveillance, whether the procedures set out in the code are relevant. The process also allows for revisions to the proposed regulation and codes.

I believe that the circulation of information or advice in relation to biomedical surveillance procedures, prior to any decision-making in respect of the procedures to be incorporated in a medical code to a regulation, will introduce an unnecessary and time-consuming step into a regulatory process that has already been criticized for being too long.

Recommendation 85-9

> "That the Minister of Labour, if he chooses not to accept the advice of the independent committee of experts, set out in writing, and make public, his reasons for not doing so."

It is accepted that all factors considered in any decision with respect to the classification of biomedical surveillance procedures, should be publicly and fully disclosed.

Recommendation 85-10

> "That the Minister of Labour take the necessary steps to ensure that workers undergoing health surveillance, health screening and biological monitoring procedures, whether these procedures are mandated or not, are fully informed as to the nature and effect of the procedure, the risks involved and the availability, if any, of a feasible alternative."

Ministry staff support the recommendation. The responsibility to so inform the worker should rest with the examining physician, and indeed, the code of ethics for the medical profession calls for practitioners to

explain to their patients the nature of health surveillance procedures, the risks involved and the availability of any alternative procedures.

Consideration will be given to incorporating in the Code for Medical Surveillance in existing and future regulations a requirement that the examining physician inform the worker of the nature of biomedical surveillance procedures, the risks involved and the availability of any alternative procedures. In addition, I am advised by my officials that the College of Physicians and Surgeons will be asked to comment on this issue.

Recommendation 85-11

> "That the Minister of Labour take the necessary steps to ensure that no health surveillance, health screening or biological monitoring procedure be mandated without the employment consequences to the worker of non-compliance being clearly specified."

Ministry staff agree in principle with Recommendation 85-11, but feel that implementation may be difficult. For example, I am sure that Council recognizes the problems that might ensue if the employment consequences of worker non-compliance with a mandatory biomedical surveillance procedure were specified in a regulation; that is, if suspension, or dismissal, for example, were so specified. Such an approach by the Ministry of Labour might be regarded as an invitation to employers to suspend or dismiss workers for non-compliance with a mandatory biomedical surveillance procedure. At present, the issue of how best to implement Recommendation 85-11 remains under consideration.

It would have been helpful if Council had also discussed the very important issue of employer liability if a worker's health is impaired under circumstances where the worker refused to undergo reasonable biological monitoring procedures. The employer is charged with protecting the worker's health. If such protection is generally agreed to include the monitoring of blood levels of a toxicant, such as in the case of lead-exposed workers, and a worker refuses to undergo blood testing and subsequently suffers from lead intoxication, I would be interested to know Council's views as to what the approach of the Workers' Compensation Board and the Ministry of Labour should be, towards the employer (assuming that all other reasonable precautions to protect health were taken).

Again, my thanks to you and your colleagues for the work involved in the preparation of this Advisory Memorandum.

Sincerely,

William Wrye
Minister

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

May 29, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

I write to raise with you a question regarding the release of ACOHOS advisory memoranda.

As you are probably aware, it is our practice to publish all advisory memoranda in the council's annual report along with your response to these documents. In the past, this usually has sufficed to make information available to interested parties in a reasonably timely way. However, this year, reference has been made to our advisory memorandum on health surveillance in statements on arsenic, ethylene oxide and chromium designated substance regulations or proposed regulations. As a consequence, interested parties contacted staff to seek copies of the advisory memorandum. We did seek your approval to release the document; however, we were asked to refrain from doing so until your response was available. It is council's view that this has created a very unsatisfactory situation since it left interested parties unable to judge the ministry's proposals in the light of council's advice. Further, it leaves open the possibility of serious misunderstanding which would not reflect well on either the ministry or on council. We recommend the following addition to the policies and practices governing release of council documents:

> if the ministry cites or makes public reference to a council document which has not yet appeared in the annual report or otherwise been released, the ministry will make copies of such documents available to interested parties.

Council has asked that I seek a meeting with you to discuss and resolve this issue. I have asked my staff to try to arrange such a meeting as soon as possible.

Your sincerely,

D. R. McCalla
Chairman

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

July 9, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on
Occupational Health and Safety
400 University Avenue, 15th Floor
Toronto, Ontario M7A 1T7

Dear Dr. ~~McCalla~~ Dennis:

I refer to your letter of May 29th in which you comment on the fact that reference was made to the advisory memorandum on health surveillance in notices sent by the Ministry to interested parties on arsenic and in notices accompanying the proposed regulations for ethylene oxide and chromium. I note your concern that this reference was made prior to the relevant advisory memorandum being placed in the public domain by publication in Council's Annual Report, so that the notified parties were not able to review the memorandum in the context of the Ministry's notice. I am advised that the Ministry has not previously referred to advisory memorandum not yet in the public domain in its notices and so the problem you refer to has not arisen previously.

As a solution to this problem, it would be my suggestion that, where reference is made by my officials to an advisory memorandum which has not yet been placed in the public domain by being published in Council's Annual Report, that, with Council's permission, a copy of the referenced memorandum be placed in the Ministry Library, thus making it available to interested parties.

If you consider that this arrangement does not present a suitable solution to the problem, I should be pleased to meet with you to discuss a solution to the problem.

Yours truly,

Bill

William Wrye
Minister

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

July 31, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

Thank you for your letter of July 9, 1986 concerning release of council advisory memoranda.

Council has briefly discussed your suggestion that, with council's permission, advisory memoranda not already in the public domain and that are referenced by ministry officials, be placed in the Ministry Library.

Council believes that it is important that such documents be available to interested parties and agrees that your suggestion appears to be a suitable solution.

Thank you for your consideration of this matter.

Yours truly,

D.R. McCalla
Chairmam

cc: G. Thompson
A. E. Robinson
B. Goodman

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

July 22, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

In your letter of April 14, 1986 in response to council's Advisory Memorandum 85-II, you raised the issue of employer liability and the approach the Ministry of Labour and the Workers' Compensation Board should take if a worker's health were impaired under circumstances where a worker refused to undergo reasonable biological monitoring procedures.

Council's advisory memorandum set out criteria for determining whether health surveillance procedures should be mandatory (i.e. must be offered to workers and are compulsory). In the limited circumstances and employment situations for which mandating of health surveillance procedures is reasonable, failure to undergo such procedures should not be an option open to a worker.

Mandating of health surveillance procedures is not seen as a substitute for all other reasonable precautions to be taken to protect the health of the worker. In the circumstances that mandatory health surveillance procedures are not warranted, a worker's refusal to undergo a non-mandatory health surveillance procedure should not have a bearing on workers' compensation.

I hope this will serve to clarify council's views on this issue in the context of health surveillance.

Yours truly,

D. R. McCalla
Chairman

cc: T. E. Armstrong
A. E. Robinson
B. Goodman

Follow up Correspondence to Previous Advisory Memorandum 85-III

Office of the
Minister

Ministry
of
Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

June 13, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
15th Floor
400 University Avenue
Toronto, Ontario
M7A 1T7

Dennis

Dear Dr. McCalla:

I write in response to your letter of March 25, 1986 concerning an aspect of the Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations.

In a letter dated December 18, 1985, Mr. Quesnel, Chairman of the Construction Industry's Provincial Labour/Management Health and Safety Committee raised the question of the use of disposable non-powered respirators. On March 24, 1986, I replied to Mr. Quesnel. A copy of my letter is attached for your information. This letter noted that the Ministry provided the Labour/Management Committee with the revised version of the regulation dealing with protective equipment during the summer of 1985. No concern was raised in relation to the issue of respirators at that meeting. In addition, Ministry officials met with officials of the Construction Safety Association of Ontario on several occasions prior to meeting with the Labour/Management Committee to review drafts of the proposed regulation. I am advised that these drafts included the respirator provisions that Mr. Quesnel wrote to me about.

I must disagree with the suggestion that the Ministry has failed to adequately communicate with its clients. The information and the opportunity was provided to all our clients during an extensive and co-operative consultative process which resulted in a comprehensive and protective regulation.

I am advised that Ministry officials and the Provincial Labour/Management Committee are continuing to work in a co-operative manner to develop the necessary designated substance regulations for the construction industry. I appreciate the efforts made by the labour and management representatives on the Committee to enhance the protection of workers to toxic substances.

Yours sincerely,

William Wrye
Minister

Attachment

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

March 24, 1986

Mr. Mike Quesnelle
Chairman
Provincial Labour Management
Health and Safety Committee
74 Victoria Street
Toronto, Ontario
M5C 1A5

Dear Mr. Quesnelle:

Thank you for writing to me concerning the Regulation Respecting Asbestos On Construction Projects and in Buildings and Repair Operations. I would like to thank you and other members of the Construction Industry Provincial Labour-Management Committee for assisting my officials in preparing this regulation. It will form the prototype for the other designated substance regulations for the construction industry. As you know, the Ministry published proposed regulation for lead and silica on construction projects during September 1985. The public meeting to consider changes to the lead regulation was held January 28, 1986 and the one for silica took place Feburary 25, 1986.

With regard to the issue of who bears responsibility for costs resulting from the discovery of asbestos materials on a project after work has begun, my officials are prepared to monitor this issue very closely and, if necessary, consider proposing amendments to the Occupational Health and Safety Act to provide for the regulation of such matters. However, at this time I do not believe it would be appropriate to consider such an amendment without full information on the real problems encountered because such an amendment would have a direct bearing on the question of government intervention in matters of private contractual arrangements which is normally dealt with through civil proceedings. In the meantime, as you know, the breach of a regulatory requirement can be the basis of an action for damages.

I understand your concern over the inclusion of replaceable respirators in subsection 11(7). I am advised that this proposal was included in a draft regulation which was shared with your committee during the summer of 1985. The regulation does not provide for the use of single-use respirators but rather replaceable respirators. For the type of exposures to which this provision applies, I am advised that respirators with replaceable cartridge filters are not the sole means of providing suitable protection for workers exposed to asbestos.

My officials are equally aware of the difficulties which may be encountered in qualitative fit testing of the replaceable dust masks. This matter was discussed at a meeting between my officials and an official of the Construction Safety Association on December 19, 1985. As a result of this meeting, I am advised that the Ministry is prepared to adopt procedures for replaceable respirators to be properly fit-tested to ensure an effective seal (as required by subsection 10(1) of the regulation). The Ministry is proposing to prepare guidelines for employers to perform a qualitative fit test on a non-powered respirator every time it is worn as required by subsection 10(1). This will help to ensure that respirators are properly fitted. In addition, inspectors will be thoroughly trained in simple methods of qualitative fit testing so that they can test the fit of their own respirators and those worn by workers if there is reason to believe that there is not an effective seal, or in the event of a dispute. Finally, where inspectors find workers wearing nonpowered respirators that have not been properly fitted, a stop work order will be issued.

My officials will monitor the situation closely and if these procedures are not adequate, rest assured that I will take the appropriate action to ensure that the necessary amendments are made to the Asbestos on Construction Regulation.

Sincerely,

Original Signed by Minister

William Wrye
Minister

c.c. Len Sylvester
General Manager, CSAO

Follow up Correspondence to Previous Advisory Memorandum 85-V

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University A
Toronto, Ontario
M7A 1T7
416/965-2448

October 8, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

You will recall that in your letter of September 19, 1986 you indicated that upon completion of a number of studies and the final report of the study being conducted by Dr. J. Muller, the ministry would be re-evaluating the exemption of underground mining and milling operations from the Regulation Respecting Arsenic.

As Dr. Muller's report has been completed, council would be interested in knowing the status of any further studies being undertaken and intentions concerning review of the exemption.

I would appreciate hearing from you regarding this.

Yours truly,

D. R. McCalla
Chairman

cc: G. Thompson
A. E. Robinson
A. Gladstone

Ontario Ministry of Labour
Ministère du Travail de l'Ontario

Office of the Minister
Bureau du Ministre

400 University Avenue
Toronto, Ontario
M7A 1T7
416 965-4101

December 5, 1986

Dr. D.R. McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 10th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

In response to your letter of October 8, 1986, my officials inform me that the review of the exemption of underground mining and milling operations will be completed early in the new year.

Ministry officials have completed a survey of arsenic in the underground mine at Campbell Red Lake. This mine was chosen for the survey as it is a gold mine known to be in a geographic area of Ontario containing relatively high arsenic levels.

The survey consisted of the airborne exposure levels, arsenic urine levels, and a health surveillance questionnaire of a representative sample of the miners. The results obtained are now being analyzed and once the analysis is complete, a report will be made public. I expect the report to be available before the end of the year.

Be assured that the Advisory Council will receive a copy of the report as soon as it is available and my officials will keep you informed of the results of the review.

Sincerely,

William Wrye
Minister

Ontario Ministry of Labour
Ministère du Travail de l'Ontario

Office of the Minister
Bureau du Ministre

400 University Avenue
Toronto, Ontario
M7A 1T7
416 965-4101

February 16, 1987

Dr. D. R. McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

Thank you for your letter of February 3, 1986, forwarding a copy of Advisory Memorandum 85-V containing Council's review of the development process for the Regulation respecting Arsenic and Related Codes. I appreciate the review made by Council of this regulation, particularly the comments concerning the most recent changes to the requirements for medical surveillance at a late stage in Council's deliberations. I have attached a detailed response from Division officials to the issues raised by Council.

In both your letter and in the Advisory Memorandum attached, Council points out the dilemma caused by the inclusion of substantial revisions to the regulation in the late stages of the process to resolve a long standing issue. As you are aware, the issue of whether medical surveillance should be mandatory or voluntary was raised by both management and labour very early in the development of designated substance regulations and has been raised on a number of occasions since. The position of interested parties on this issue has been discussed publicly over the years. Both labour and management have made it clear that, in many instances, medical surveillance should not be mandatory. Also, the provisions for medical examinations, as presented to Council in the revised regulation, are substantially those which have been incorporated in the regulations being developed for the construction industry. Three of the proposed construction regulations have been through a public comment process. Therefore, despite the absence of formal comment on the discussion of the removal of mandatory medical surveillance from this particular regulation, I proceeded to submit the proposed changes to Council. I was pleased to note that Council concurred in principle with the approach taken. Since receiving Council's advice I proceeded to Cabinet. The Regulation respecting Arsenic was filed with the Registrar of Regulations on March 27, 1986.

I have distributed to interested parties a notice advising that the regulation has been filed, and attached a copy of the regulation and a summary explaining changes made to the regulation, including revisions made regarding medical surveillance. I have attached a copy for your information.

I note that Council has concurred with my officials in their decision to exempt underground mines from the arsenic regulation for the time being.

The Ministry is currently discussing both with the mining companies and the unions an appropriate survey to determine the extent of exposure of underground miners to arsenic. It is expected that the results of the survey will be available by the end of the year. At the same time, the Ministry expects to receive the report of the Ontario Miners Study this spring. Information in this report may also provide a basis for reconsidering the exemption.

I would like to thank Council for its advice. Council's review and comments on this regulation, particularly their considered opinion on the late changes, are appreciated.

Sincerely,

William Wrye
Minister

Attachment

RESPONSE TO ADVISORY COUNCIL MEMORANDUM 85-V ON THE REVIEW OF THE PROPOSED ARSENIC REGULATION

OCCUPATIONAL HEALTH AND SAFETY DIVISION
MINISTRY OF LABOUR
February, 1987

During the review of the proposed arsenic regulation by the Advisory Council on Occupational Health and Occupational Safety several issues were raised and discussed in Advisory Memorandum 85-V.

These were:

- health effects data for arsenic;
- the interpretation of the health effects data and the short-term exposure limit;
- the risk assessment;
- lack of exposure data for arsenic in underground mines;
- revision of the mining regulations to provide an updated list of exposure values for toxic substances;
- provision of a section to require implementation of new technology as it becomes available in all regulations which require the lowest practical level; and
- the technique for monitoring for arsenic.

These issues will be addressed individually.

1. Health Effects of Arsenic

The original health effects document published in August, 1983, stated at the outset that it was a review of arsenic and its inorganic compounds with the exception of arsine. An extensive discussion of arsine was not included in the report and the regulation because of its unique toxicological properties.

During the process of internal review of the arsenic regulation prior to its publication in August, 1983, a paper on arsine was published by Dr. P. Landrigan (1982) which concluded that arsine was converted in the lung to arsenic trioxide and therefore should be considered to be a carcinogen and included in the regulation of arsenic and its compounds. This concept was discussed in depth by Ministry officials and a decision was made to consider inclusion of arsine in the regulation as a means to provoke debate. The initial draft of the health effects document was altered to include arsine and a small paragraph on the acute effects of exposure to arsine was added. Following public comment and a further review of the available literature however, Ministry officials could not verify that arsine was converted to arsenic trioxide in the lung. A decision was then made that arsine should not be included in the regulation as there was inadequate evidence to consider it a carcinogen. The need for an extensive review in the health effects document was not considered necessary.

Technological changes in industry have increased the possibility of exposure to arsine in the "semi-conductor industry" as a low level contaminant rather than, as it has been in the past, a high level accidental exposure hazard. Arsine will be included in the list of substances to be referenced in the proposed revision to section 145 of the Regulations respecting Industrial Establishments. This revised regulation will apply to all sectors except the construction industry.

2. **Interpretation of the Health Effects Data and Removal of the Short-Term Exposure Limit**

In its memorandum Council acknowledged that the review of the health effects information was thorough and adequate but did express concern about the interpretation of the data on the carcinogenicity of arsenic. In particular, Council pointed out that some data indicate that the incidence of respiratory cancer more directly related to the intensity of the exposure than to the duration of exposure.

The Ministry acknowledges that there are suggestions in the literature that intensity may be a better predictor of the risk of respiratory carcinogenesis than is duration, but these suggestions have not been validated by experimental evidence.

Evidence relating incidence to intensity can be taken from the suggestion in the study by Welch et al. (1982)[1] that there was a threshold below which there was not an increased incidence of respiratory carcinogenesis. Careful assessment of this study shows that in the low exposure categories the statistical sensitivity was low for the detection of respiratory cancer (only a percentage of this cohort was examined). The evidence is not conclusive and not supported by other studies.

There is also a suggestion in the paper by Pinto, Enterline and Henderson (1977)[2] that although both duration and intensity contribute to the excess cancer risk, intensity would seem to be a better predictor of respiratory cancer than duration of exposure. This is not well supported as the authors only considered two periods of exposure, less than 25 years and over 25 years. The period of employment ranged from 7 - 54 years. This lack of specific data in the published literature did not enable Ministry officials to determine whether effects from intensity could be separated from those of duration.

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1 Welch, K., Higgins, I. et al. (1982).
"Arsenic Exposure, Smoking and Respiratory Cancer in Copper Smelter Workers."
Arch. Env. Health, Vol. 27, No. 6, pp. 325-335.

2 Pinto, S. S., Enterline, P.E., Henderson, V., and Varner, M. (1977).
"Mortality Experience in Relation to a Measured Arsenic Trioxide Exposure." Environmental Health Persp., Vol. 19, page 5.

This issue was raised in a discussion of the removal of the short-term exposure limit. The Ministry had initially included a short-term exposure limit to control exposures to arsine which produces acute health effects at higher levels. When the decision was made to remove arsine from the proposed regulation the short-term exposure was also removed.

Although Ministry officials do not concur that there is adequate health effects data to support a short-term exposure limit for arsenic, the Ministry has in other designated substance regulations included such limits on the basis of prudent industrial hygiene policy. Therefore, a short-term exposure, measured over 15 minutes, of 50 micrograms/m^3 has been included in the regulation.

3. **The Risk Assessment**

In its memorandum Council comments on the use of the published data rather than the original or "raw" data for use in the risk assessment. These data were presented as cumulative dose. Council also notes that there was no attempt to look at either the raw data or to analyse other data to attempt to consider intensity and duration separately.

In the risk analysis performed by Ministry officials the "dose" was measured as total arsenic inhaled because this type of measure is usually used and gives the simplest analysis of the data. The description of the risk assessment indicates that the exposure data are not precise and that many important factors which affect lung cancer risk were not included in the data available from published reports. One table in the risk assessment shows that the estimate of the effects of a given exposure to arsenic range from highest to lowest by more than a factor of 10.

It is agreed that it would be beneficial to examine the raw data used in preparing the various epidemiological studies. There is a recent trend

towards the analysis of the raw data from an epidemiological study by several investigators, independently. This trend should be encouraged but is dependent upon the raw data being made available in a convenient form. It must be recognized that obtaining and analyzing raw data is very time-consuming and therefore the decision to do so must be selective rather than routine.

A peer review of the epidemiology and the risk assessment was done by Dr. Robin Roberts of McMaster University prior to the publication of the health effects document. Dr. Roberts also produced for the Ministry a quantitative risk assessment which was in agreement with the risk assessment produced by the Ministry.

Present Ministry policy is to submit health effects documents produced either by Ministry officials or by consultants working for the Ministry to experts in the field for review during the initial development of a regulation. It is also the policy of the Ministry to have all health effects documents distributed to the public for general comment prior to a proposed regulation being published.

4. Lack of Exposure Data for Arsenic in Underground Mines

Council notes that at the time the proposed arsenic regulation was published in 1983 there was no information available to the Ministry on exposure of workers to arsenic in underground mines in Ontario. At the time only limited data on exposure of workers to arsenic in other jurisdictions was available. Ministry officials contacted other countries, including Sweden, and the Mining Safety and Health Administration (MSHA) in the United States to procure what information was available. Some exposure data were received from MSHA indicating that approximately 5% of the samples taken by MSHA over the years exceeded the proposed exposure limit of 10 micrograms/m^3. However, Ministry officials were informed that caution should be exercised in extrapolating this data to the exposure in Ontario mines since the

percentage of arsenic in the ore could vary appreciably. The Ministry concluded that most companies would do an assessment and likely not have to implement a control program. In order to obtain information on this issue from Ontario mines the Ministry did do a preliminary survey of exposure to arsenic in underground mines and milling operations. The results of this survey were received and reviewed during the designation process before a decision was made to exempt these operations pending a more extensive survey.

At present, Ministry officials do attempt to obtain as much exposure data as possible prior to publication of a proposed regulation. The Ministry performed a survey of exposure to ethylene oxide in hospitals prior to publishing the proposed ethylene oxide regulation. In developing a regulation for chromium an extensive review of exposure data collected by the Ministry was undertaken. Where necessary, additional measurements were undertaken to cover as many sectors as possible. Wherever possible it is Ministry policy to collect as much information as possible prior to publication of a proposed regulation.

5. **Revision of the Mining Regulations**

As was mentioned in the discussion of arsine above, the Ministry is in the process of revising section 145 to reference an updated list of exposure values for toxic substances. This list of exposure values will apply to the mining sector and will be reviewed and revised as necessary.

6. **The Requirement to Provide New Technology in Regulations which Require the Lowest Practical Level**

Council suggests that a provision to require the implementation of new technology be incorporated in all designated substances where there is a requirement to meet a level as low as practical. This provision was first included in the Regulation respecting Coke Oven Emissions because the

Ministry acknowledged that the technology was not available to meet the proposed exposure limits in all areas at all times. The purpose of the section is to place an onus on employers to implement new technology as soon as feasible when current technology is not available to meet an exposure limit.

Regarding the requirement to include such a provision in all regulations which require employers to lower exposure to the lowest practical level the Ministry believes this requirement is adequately taken care of by the requirement to lower exposure to the lowest practical level by means of engineering controls, work practices and hygiene practices and facilities.

7. Monitoring for Arsenic

Council recommends that, because the technique for determining arsenic concentrations produces variable results at times, a study should be undertaken to investigate alternate monitoring techniques.

In the discussion with the Advisory Council task force on this issue the difficulty arising from variation in results was discussed. There would seem to be some confusion resulting from that discussion between data variations and measurement errors. Measurement errors are one of the many factors which influence data variations. The latter, in turn, reflect the air quality variations common for all chemical contaminants in the work place due to the dynamic hour-to-hour and day-to-day changes in product, work operations, work practices, job habits, control procedures or the effectiveness of control systems. Since these variations are unique for each work place, variations for one work place cannot readily be extrapolated to another.

The Royal Commission on Asbestos recognized this very well when they concluded after expert testimony that, to ensure compliance with a 1 f/cc standard, the employer should not allow determined fibre counts

to exceed 0.5 f/cc (and even then there is approximately a 10-20% chance that exposures in excess of 1f/cc occur). Practising professional hygienists recognize that, instead of pursuing the goal of determining the sources of random error in any one plant, it is eminently more practical to determine the statistical confidence in measurements taken and to proceed on that basis. The use of a proper sampling strategy, based on a knowledge of all work-related information which influences the daily variation in air levels, is the main key to the acquisition of data representative of worker exposure. The interpretation of data and the enforcement of health standards rely on the use of appropriate statistical methods. These are found in several texts, most notably the NIOSH publication, "Occupational Exposure Sampling Strategy Manual".

Council also suggested the use of area sampling as a means of determining compliance. In professional practice, personal samples are always preferred since they are much more likely to measure individual exposure.

Other Correspondence

i) Correspondence concerning proposed formaldehyde regulation

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

June 13, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I am pleased to forward the proposed formaldehyde regulation for Council's review and comment.

A proposed regulation respecting formaldehyde was published in The Ontario Gazette on July 30, 1983 and a revised regulation was presented at an open review meeting on October 13, 1983. The question of whether the Ministry should proceed with the regulation of formaldehyde was controversial because of differing opinions on its health effects, and accordingly an external expert committee was requested to examine the health effects literature. In deciding to proceed with the designation of formaldehyde, I have taken note of the committee's conclusion that formaldehyde is a carcinogen.

As you will note, the exposure limit in the proposed regulation has been revised in two respects since the open review meeting. First, the exposure limits, originally expressed only as a maximum concentration, are now expressed as both a time-weighted average exposure and a maximum concentration. Second, the revised regulation now specifies two sets of limits, one set for existing work places and lower values for new work places or those where significant alterations are undertaken which allow the installation of more effective engineering controls. These changes are based in part on the recommendation of the expert committee that the proposed regulation should have a time-weighted average exposure limit of 1 ppm. Since formaldehyde may cause irritating symptoms below 1 ppm, I have decided that the time-weighted average exposure limit for new or renovated work places should be 0.5 ppm and that appropriate maximum concentration limits be specified as well. I am informed that Sweden and Denmark also have differing sets of exposure limits for existing and new plants.

You will also note that significant changes have been made to the proposed regulation arising from the Ministry's consideration of the Advisory Council's advice on medical surveillance. Ministry officials have considered the nature of the health effects from exposure to formaldehyde and the benefits to be derived from a mandatory medical surveillance program.

Mandatory medical surveillance conducted on a routine and periodic basis will provide no useful information to the worker or the employer with regard to any of the health effects which may derive from exposure to formaldehyde at levels mandated under this regulation.

In keeping with Council's earlier advice that the parties be informed of changes made to the regulation following the public meeting, I have sent a notice to interested parties explaining the changes made to the regulation, and enclosing a copy of the proposed regulation.

I look forward to receiving Council's advice on this proposed regulation in the near future.

Sincerely,

William Wrye
Minister

ii) Correspondence concerning proposed noise regulation

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

July 7, 1986

Dr. D. McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I write to you on a matter of the utmost importance and urgency, namely the designation of noise under the Occupational Health and Safety Act. The Special Advisory Committee on the Noise Regulation has submitted its report to me. Officials of the Ministry have reviewed it and have advised me that the recommendations should be adopted. They have also prepared a revised noise regulation which takes into account the recommendations of the Special Advisory Committee. I have attached a copy of both the report and the regulation for your information and consideration. I have also included the Occupational Health and Safety Division's rationale for making the changes to the regulation.

I believe that it is important for Council to have an opportunity to examine this material and provide me with any comments it may wish to make. I understand that Council has already provided advice on the issue of noise in two previous advisory memoranda.

I appreciate the fact that this request comes at a time when Council has a number of important matters before it. However, I would appreciate receiving your advice on the regulation during September, 1986 because I am anxious to proceed as soon as possible to finalize the noise regulation.

I look forward to hearing from you.

Yours sincerely,

William Wrye
Minister

Ontario

Advisory Council on Occupational Health & Occupational Safety

Conseil consultatif de la santé et de la sécurité au travail

INTERNATIONAL YOUTH YEAR 1985
ANNÉE INTERNATIONALE DE LA JEUNESSE 1985

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

October 24, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

We understand from your letter of July 7, 1986 that you are awaiting council's review of the proposed noise regulation before proceeding to Cabinet and that there is some urgency in finalizing this regulation.

A task force of council conducted a thorough and detailed review of the process of development and of the technical legal aspects of the regulation. The task force met with ministry personnel to discuss and to seek clarification on a number of issues. A draft document was prepared and presented to council for discussion. During the discussion it became clear that consensus could not be reached on several fundamental issues.

This lead to a discussion in council in which various members questioned the premise of the designated substance regulations, the public process, and council's role.

Council's role has been to review the designated substance regulations focussing on the process of development, especially the opportunity for public consultation. As council has recently indicated in the letter of transmittal of Advisory Memorandum 85-V (council's review of the Arsenic Regulation), the introduction of new concepts into a regulation after the formal opportunity for public comment puts council in a position of commenting on the substance of the change. This has been causing council increasing concern.

It is important that the objective of a regulation be clear, that the regulation set the standards necessary for attaining the objective, and that the regulation be feasible, enforceable, and acceptable. As the protection of workers from the adverse health effects of noise is so important, the implications of a noise regulation so great, and as a noise regulation will affect most workplaces (including many with no experience with joint health and safety committees), it was felt that it was incumbent on council to point out its concerns and to ensure that the advice it gives you accurately reflects the views of council as a whole.

Council's concern at any further delay in promulgating the regulation is partly allayed by the existence of Section 144 of the Industrial Regulation, which, if enforced, appears in some ways as though it could be at least as protective for many workers as the proposed designated substance regulation. It is unclear, at this stage, the protection offered to miners by the Mining Regulation.

During the 6-8 year period of the regulation's development, many changes have occurred and it has been 5 years since the public had the opportunity to comment on a draft noise regulation.

The fact that council has received a number of letters and copies of letters submitted to the ministry from interested parties, emphasizes the importance of the opportunity for public comment after such a long period.

The comments received have included:

1) need for a provision for a co-ordinating physician;
2) the role of the examining physician and audiometric tester;
3) the implications of basing the requirement for engineering controls on an 8 hour work-day as well as a 40 hour work-week;
4) the frequency of audiometric tests;
5) the need to up-date the base line audiograms and to take into account the effects of presbycusis;
6) the need to include the use of sound level meters;
7) the requirement for audiometry to be conducted after 14 hours away from occupational noise;
8) the requirements for the ambient "noise" levels when audiometry is performed;
9) the criteria for "significant threshold shift";
10) the attenuation of audiometers;
11) the issue of which workers are exempt.

Given its current role, council seems to be an inappropriate body to carry out the analysis of these comments and to propose what changes (if any) should be made to the proposed regulation.

A special meeting between the members of council on the noise task force and the group considering alternative strategies for controlling hazardous substances in the workplace has been scheduled for November 3, 1986.

Council members have requested that you meet with council so that they can communicate some of the fundamental concerns raised in council regarding the appropriateness of the approach of the noise regulation and its development, prior to attempting to provide you with advice that would aid you in the difficult task of putting in place a regulation on noise.

Yours truly,

D. R. McCalla
Chairman

cc: G. Thompson
A. E. Robinson
A. Gladstone

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

November 27, 1986

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

In my letter of October 24, 1986 council requested a meeting with you prior to council's attempting to provide you with advice relating to noise. I understand from subsequent communication from the Deputy Minister's office that you are planning to attend council's meeting on December 9, 1986.

As noted in my letter, the discussion of the issues raised during the review of the proposed noise regulation also led to further questions concerning designated substance regulations, the public process and council's role.

At the special joint meeting of the task force reviewing the noise regulation and the group considering alternative strategies for controlling hazardous substances, there was discussion of the issues of designation and of regulations and approaches for the control of hazardous substances in the workplace in addition to the specific concerns raised during the review of the noise regulation.

The report of this meeting to council prompted considerable discussion of these issues, the role that council has played and the role that it might play in the future.

During the review of the designated substance regulations council has observed certain patterns recurring in both the regulations and council's advice. In this context council has also submitted advice to you on a number of 'generic' issues in its advisory memoranda on criteria (85-I), medical surveillance (85-II) and workplace control programs (85-IV).

As part of council's process of reviewing its own role and activities and to aid in planning for future endeavours, council would like to have the benefit of your thoughts on council's role at its meeting with you on December 9, 1986.

Council members are looking forward to dialogue with you on these important issues.

Yours truly,

D. R. McCalla
Chairman

Encl.

cc: G. Thompson
A.E. Robinson
A. Gladstone

Ontario

Advisory Council on Occupational Health & Occupational Safety

Conseil consultatif de la santé et de la sécurité au travail

INTERNATIONAL YOUTH YEAR 1985
ANNÉE INTERNATIONALE DE LA JEUNESSE 1985

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

January 23, 1987

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

This is to acknowledge your request, made at our January 10th meeting, that council not proceed at this time to formulate its advice to you concerning the proposed noise regulation.

We trust your decision in this regard will be made widely known.

Yours truly,

D. R. McCalla
Chairman

cc: G. Thompson
A. Robinson
A. Gladstone

iii) Correspondence concerning proposed regulation respecting Silica - Construction Projects and Aggregate Production

Ontario

Office of the Minister

Ministry of Labour

400 University Avenue
Toronto, Ontario
M7A 1T7
(416) 965-4101

July 11, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I am pleased to forward for Council's review and comment the Proposed Regulation respecting Silica - Construction Projects and Aggregate Production.

The proposed regulation was developed in response to a request by the Joint Labour/Management Health and Safety Committee of the Construction Safety Association of Ontario. In a 1980 brief to the Ministry commenting on the then proposed designated substance regulation respecting silica, the Committee had strong objections to the proposed designated substance regulations being applied to the construction industry because of the variable conditions that exist at construction sites. The construction industry preferred a "control by procedure" approach. Towards this end, the Construction Safety Association of Ontario has worked with the Ministry in developing the Proposed Regulation respecting Silica - Construction Projects and Aggregate Production.

A Proposed Regulation respecting Silica - Construction Projects and Aggregate Production was published in The Ontario Gazette on September 21, 1985, and a revised regulation was presented at an open review meeting on February 25, 1986.

I look forward to receiving Council's advice on this proposed regulation in the near future.

Sincerely,

William Wrye
Minister

iv) Correspondence concerning proposed amendment to the Regulation respecting Mercury

Ontario Ministry of Labour
Ministère du Travail de l'Ontario

Office of the Minister
Bureau du Ministre

400 University Avenue
Toronto, Ontario
M7A 1T7
416 965-4101

October 14, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla,

I am pleased to forward for Council's review and comment a proposed amendment to the Regulation respecting Mercury (O. Reg 141/82). This amendment is proposed to address the issue of mercury exposure in the construction industry.

In 1980 the construction industry was exempted from the Regulation respecting Mercury at the request of the industry Provincial Joint Labour/Management Health and Safety Committee. The construction industry requested that separate regulations be developed for control of designated substances on construction projects because of the variable nature of the work. In reviewing the possible sources of exposure to mercury in the construction industry the Ministry, in cooperation with the Construction Safety Association of Ontario and the Committee, concluded that the only major source of exposure, apart from accidental leaks or spills, would occur in the renovation or demolition of chlor-alkali plants. The proposed amendment has been designed to protect workers during such a project.

The proposed amendment was published in The Ontario Gazette on January 18, 1986 and presented at a public meeting on June 4, 1986.

I look forward to receiving Council's advice on this proposed amendment in the near future.

Sincerely,

William Wrye
Minister

Attachment

v) Correspondence concerning proposed cadmium regulation

Ontario Ministry of Labour
Ministère du Travail de l'Ontario

Office of the Minister
Bureau du Ministre

400 University Avenue
Toronto, Ontario
M7A 1T7
416 965-4101

October 14, 1986

Dr. Dennis McCalla
Chairman
Advisory Council on Occupational Health
and Occupational Safety
400 University Avenue, 15th Floor
Toronto, Ontario
M7A 1T7

Dear Dr. McCalla:

I am pleased to present to you for the Council's review and comment, the proposed regulation respecting cadmium together with my Ministry's analysis of the public commentary on the regulatory proposals.

The proposed regulation was developed in response to concerns about the health of workers in Ontario who may be exposed to cadmium during its production, processing and use.

A proposed regulation respecting cadmium was published in The Ontario Gazette on September 14, 1985, and a revised regulation was presented for public review at an open meeting on March 17, 1986.

I look forward to receiving Council's advice on this proposed regulation.

Sincerely,

William Wrye
Minister

vi) Correspondence concerning council's role in reviewing the process used in the development of proposed designated substance regulations

Advisory Council on Occupational Health & Occupational Safety
Ontario

Conseil consultatif de la santé et de la sécurité au travail

Office of the Chairman

Bureau du président

400 University Avenue
Toronto, Ontario
M7A 1T7
416/965-2448

March 31, 1987

The Honourable William Wrye
Minister of Labour
400 University Avenue
14th Floor
Toronto, Ontario
M7A 1T7

Dear Mr. Wrye:

This is to confirm that council has concluded that it should no longer continue its present practice of reviewing each of the proposed designated substance regulations prior to promulgation. The two major factors that led to this conclusion are:

1) Since 1984 there has been a labour boycott of the ministry's standard setting process. Given this situation it seems inappropriate to expect council to comment on the process as it has done in the past. You will recall that this situation was discussed when you met with council in February 1987;

2) Second, council has been spending an increasing proportion of its time, attention and resources identifying and dealing with minor technical/legal points which it feels should have been attended to by the ministry prior to submission of the regulations for council's review. Council members strongly believe that this is inappropriate and that it has the effect of deflecting council's attention away from more fundamental long-term projects and issues.

In addition, many major issues relevant to designated substance regulations have been addressed by council and have been the subject of specific advice, e.g. health surveillance, principles and procedures for the interpretation of epidemiological studies, criteria for the selection of substances for control and workplace control programs.

Council is, however, in the process of carrying out its review of a number of proposed regulations submitted to it previously i.e., formaldehyde, lead on construction projects, and silica on construction projects and the proposed amendment to the mercury regulation, but does not intend to carry out a review of the proposed regulation respecting cadmium.

Yours truly,

D. R. McCalla
Chairman

cc: G. Thompson
Assistant Deputy Minister's Office
A. Gladstone
A. E. Robinson

ADMINISTRATION

Legal Mandate of The Advisory Council

Section 10, the Occupational Health and Safety Act.

Advisory Council on Occupational Health and Occupational Safety
10.—(1) There shall be a council to be known as the Advisory Council on Occupational Health and Occupational Safety composed of not fewer than twelve and not more than twenty members appointed by the Lieutenant Governor in Council on the recommendation of the minister.

Term of office of members
2) The members of the advisory council shall be appointed for such term as the Lieutenant Governor in Council determines and shall be representative of management, labour and technical or professional persons and the public who are concerned with and have knowledge of occupational health and occupational safety.

Chairman and vice-chairman
3) The Lieutenant Governor in Council shall designate a chairman and a vice-chairman of the advisory council from among the members appointed.

Vacancies
4) The Lieutenant Governor in Council may fill any vacancy that occurs in the membership of the advisory council.

Remuneration and expenses
5) The remuneration and expenses of the members of the advisory council shall be determined by the Lieutenant Governor in Council and shall be paid out of the moneys appropriated therefor by the legislature.

Powers of advisory council
6) The advisory council, with the approval of the minister, may make rules and pass resolutions governing its procedure, including the calling of meetings, the establishment of a quorum, and the conduct of meetings.

Idem
7) The function of the advisory council is and it has power,
a) to make recommendations to the minister relating to programs of the ministry in occupational health and occupational safety; and
b) to advise the minister on matters relating to occupational health and occupational safety which may be brought to its attention or be referred to it.

Annual report
8) The advisory council shall file with the minister not later than the 1st day of June in each year an annual report upon the affairs of the advisory council.

Idem
9) The minister shall submit the report to the Lieutenant Governor in Council who shall cause the report to be laid before the assembly if it is in session or, if not, at the next ensuing session. 1978, c. 83, s. 10.

Primary objective of advisory council

To advise the Minister of Labour on all matters relative to occupational health and safety in Ontario.

Secondary objectives of advisory council

1. To ensure as far as is possible that the policies and programs in occupational health and safety effectively minimize the risks to health and safety in all workplaces in Ontario.
2. To ensure as far as is possible that knowledge about occupational health and safety is available to management, labour and the public and that it is understood by them.
3. To assist in promoting and establishing mechanisms involving management and labour to solve problems in occupational health and safety.
4. To ensure as far as is possible that there is appropriate manpower training and development for the occupational health and safety field.
5* To review periodically the effectiveness of the policies and programs implemented to achieve secondary objectives 1 to 4.

Terms of reference of advisory council

1. To make recommendations on matters referred to it by the minister, submitted to it by interested parties or pursued by the council on its own initiative.
2. To advise the minister on programs in the field of occupational health and safety.
3. To advise the minister on policies, principles and procedures used in standard setting and in the development of guidelines to be used by the government.
4. To review and make recommendations to the minister on the introduction of new substances such as chemicals into the workplace.
5. To review and make recommendations on the detection, measurement and control of occupational health and safety hazards in the workplace.
6. To review and make recommendations about the arrangements for occupational health and safety for groups and areas where there are no formal health and safety programs or the programs are judged to be inadequate.
7. To advise the minister on priorities for research and development in occupational health and safety.
8. To advise the minister on priorities for manpower training and development in the field of occupational health and safety.
9. To prepare an annual report to the minister, which shall include the advisory memoranda, recommendations of the council and the government response.

*added June 1980

Meetings of the Advisory Council

April 8, 1986*
May 13, 1986
June 10, 1986**
July 22, 1986
September 9, 1986
October 14, 1986***
November 11, 1986****
December 9, 1986****
January 13, 1987†
February 9, 1987††
February 10, 1987†††
February 25, 1987††††
March 10, 1987

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* Included discussion with ministry staff
** Followed by dinner meeting with Minister of Labour
*** Included discussion with Deputy Minister of Labour
**** Pending Order-in-Council appointing new members/reappointing members to council, participation at this meeting was based on council membership as at October 1986
† Included discussion with Minister and Deputy Minister of Labour
†† Included discussion with OPSEU representatives
††† With Minister and Deputy Minister of Labour
†††† Conference call (D.R. McCalla, D. Morrison, C.J. Tuohy, D. Ublansky)

TASK FORCES

TASK FORCES OF ADVISORY COUNCIL ON OCCUPATIONAL HEALTH AND OCCUPATIONAL SAFETY

TASK FORCE ON PRINCIPLES AND PROCEDURES FOR SETTING STANDARDS AND REGULATIONS

Terms of Reference (Original)
To establish guidelines by which council can determine the appropriateness of the principles, policies and procedures used in setting the standards and regulations in occupational health and safety in Ontario.
To include such things as the development of the regulations and public input about those regulations.

Membership for the Review of the Process Used in the Development of the Proposed Regulation Respecting Ethylene Oxide:

Council Members
D. Ublansky – chairman
R.T. Boldt
W.K.C. Morgan

Others
J.C. Divitt – Canadian Union of Public Employees, Scarborough
R. Kosan – Ontario Hospital Association, Don Mills

Meetings Held
April 16, 1986
May 26, 1986*

Reports to Council
June 10, 1986

Resulting in
Advisory Memorandum 86-I

Membership for the Review of the Process Used in the Development of the Proposed Regulation Respecting Noise:

Council Members
D.R. McCalla – chairman
N. Caldbick
R. Falconer
J. Gill

Others
P.W. Alberti – Mount Sinai Hospital, Toronto
K. Doerwald – General Motors of Canada Ltd., Oshawa
A. Lee – Ontario Hydro, Toronto

Meetings Held
September 5, 1986
September 15, 1986*
November 11, 1986**

Reports to Council
October 14, 1986
January 13, 1987

* Meeting with Ministry of Labour officials
**Joint meeting with council's 'Alternatives Group'

Membership for the Review of the Process Used in the Development of the Proposed Regulation Respecting Formaldehyde:

Council Members
D. Ublansky – chairman
R.T. Boldt
W.K.C. Morgan
H.D. Moyer

Others
J.C. Divitt – Canadian Union of Public Employees, Scarborough.
I. Munro – Canadian Centre for Toxicology, Guelph.
H. Shannon – Chedoke McMaster Hospital, Hamilton.

Meetings Held
September 23, 1986
October 31, 1986*

Membership for the Review of the Process Used in the Development of the Proposed Regulation Respecting Lead on Construction Projects and Related Codes:

Council Members
D. B. Smith – chairman
T. Byrne
R. Falconer
J.L. West

Others
J.W. Charters – Steel Company of Canada Ltd., Hamilton
B.L. Gibson – City of Toronto, Department of Public Health, Toronto

Meetings Held
January 5, 1987
January 27, 1987*

Reports to Council
March 10, 1987

Resulting in
Advisory Memorandum 86-IV

*Meeting with Ministry of Labour officials.

TASK FORCE ON THE IMPLEMENTATION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT

Terms of Reference

i) To review the application and interpretation of the Act and regulations, with particular reference to such issues as:
   - the right to refuse work
   - the role of government
   - legal interpretations
   - responsibilities regarding health and safety information.

ii) To examine the functioning of the joint health and safety committees, including the matter of access to information.

iii) To review the application and implementation of the designated substance regulations.

iv) To make appropriate recommendations.

Members

Council Members

C.J. Tuohy – chairman
R.T. Boldt
J. Duffy*
P.A. Fisher*
J. Gill
E. Kaegi*
T H. Meagher
P.L. Rooney
E.A. Waddell

Others

W.A. Barnes – St. Catharines
K. Glassco – Energy & Chemical Workers Union (Polysar Ltd.)
J.N. Lockington – Dofasco
C. Schmidt – United Rubber Workers of America (Uniroyal Ltd.)
K. Swinton – University of Toronto, Faculty of Law
M.A. Taschereau – Consultant, Toronto

Meetings Held
May 7, 1986
June 4, 1986

Reports to Council
July 22, 1986
September 9, 1986
October 14, 1986

Resulting in
Advisory Memorandum 86-II

* On ex officio basis from expiry of council membership.

TASK FORCE ON CRITERIA AND ALTERNATIVE APPROACHES FOR THE CONTROL OF HAZARDOUS SUBSTANCES AND AGENTS IN THE WORKPLACE

Terms of Reference

i) To identify criteria for use in: establishing priorities for the control of hazardous substances and agents in the workplace, selecting appropriate control strategies, and establishing priorities for the development of information on which to assess need for, and evaluation of, control measures.

ii) To consider means for the systematic development of information required to apply criteria as described in i) above.

iii) To review current measures for the control of hazardous substances and agents in the workplace and to consider alternative approaches including possible modifications of the current model of designated substance regulation.

iv) To consider appropriate mechanisms for involvement of affected parties in the types of decisions and processes outlined in terms of reference i), ii) and iii) above.

v) To report and make recommendations to council with respect to these matters.

At the April 8, 1986 meeting of the Advisory Council, a group of council members agreed to consider term of reference iii) above*:

'Alternatives Group' Membership
D.N. Dewees – *chairman*
R.T. Boldt
D.R. McCalla
C.J. Tuohy
D. Ublansky

Meetings Held
May 13, 1986
June 10, 1986**
September 16, 1986
November 3, 1986***

Reports to Council
October 14, 1986

* Other terms of reference were dealt with in:
Advisory Memorandum 85-I – Identification of Criteria
Advisory Memorandum 85-IV – Workplace Control Programs.
** Meeting with Ministry of Labour officials.
*** Joint meeting of Task Force on Noise and Alternatives Group.

TASK FORCE ON BIOTECHNOLOGY

Terms of Reference

i) To review concerns associated with biotechnology.
ii) To review policies and regulations designed for, or applying to, biotechnology in other jurisdictions.
iii) To review the adequacy of current Ontario regulations to protect the health and safety of workers in each stage of the life cycle of biotechnological processes and procedures.
iv) To make recommendations to ensure adequate protection of workers in biotechnology in Ontario.

Members

Council Members
R.T. Boldt – chairman
D.R. McCalla*
G.M. Nipshagen
C.J. Tuohy
D. Ublansky

Others
D. Burke – Allelix Inc.
P. Tocher – Connaught Laboratories (Energy and Chemical Workers, Local 67)

Meetings Held
April 15, 1986
May 13, 1986
June 18, 1986
September 11, 1986
October 28, 1986
December 11, 1986
January 22, 1987

* Chairman for January 22, 1987 meeting.

APPENDICES

APPENDIX A
Fatal and Non-Fatal Disabling Injuries[1] Initially Settled in Ontario in 1985 and 1986, Classified by Nature of Injury

Name of Injury	Non-Fatal Disabling Injuries 1985		Fatalities 1985		Non-Fatal Disabling Injuries 1986		Fatalities 1986	
	No.	%	No.	%	No.	%	No.	%
Traumatic Injuries								
Amputation or Enucleation	615	0.34	0	0.00	585	0.30	0	0.00
Asphyxia, Strangulation, Drowning	0	0.00	6	4.17	0	0.00	6	4.03
Burn or Scald – Heat	4,297	2.35	3	2.08	4,438	2.29	4	2.69
Concussion – Brain, Cerebral	370	0.20	0	0.00	364	0.19	0	0.00
Contusion, Crushing, Bruise – Intact Skin	37,795	20.65	75	52.08	38,692	20.45	75	50.33
Cut, Laceration, Puncture – Open Wound	23,030	12.58	5	3.47	24,547	12.65	0	0.00
Dislocation	620	0.34	0	0.00	658	0.34	0	0.00
Electric Shock, Electrocution	175	0.10	6	4.17	220	0.11	9	6.04
Fracture	8,498	4.64	3	2.08	8,375	4.31	2	1.34
Hernia, Rupture	1,588	0.87	0	0.00	1,789	0.92	0	0.00
Scratches, Abrasions – Superficial Wounds	5,898	3.22	0	0.00	6,274	3.23	0	0.00
Sprains, Strains	85,932	46.95	4	2.78	93,637	48.25	2	1.34
Multiple Injuries	1,216	0.66	3	2.08	1,118	0.58	1	0.67
Occupational Injury, NEC[2]	6,367	3.48	6	4.17	4,612	2.38	7	4.70
Total Traumatic Injuries	176,401	96.38	111	77.08	186,309	96.00	106	71.14
Occupational Diseases/Illnesses								
Burn – Chemical	1,188	0.65	0	0.00	1,411	0.73	1	0.62
Tuberculosis Only	3	0.00	0	0.00	3	0.00	0	0.00
Tuberculosis and Pneumoconiosis	0	0.00	0	0.00	1	0.00	0	0.00
Contagious or Infectious Disease, NEC	414	0.23	0	0.00	310	0.16	0	0.00
Dermatitis	661	0.36	0	0.00	693	0.36	0	0.00
Freezing, Frostbite & Other Envir. Cold	53	0.03	0	0.00	62	0.03	0	0.00
Hearing Loss or Impairment	763	0.42	0	0.00	914	0.47	0	0.00
Heat – Sun-Stroke – Envir. Heat	13	0.01	0	0.00	8	0.00	0	0.00
Bursitis	32	0.02	0	0.00	46	0.02	0	0.00
Synovitis, Tenosynovitis	819	0.45	0	0.00	1,380	0.71	0	0.00
Inflammation or Irritation of Joints, Tendons, etc. NEC	457	0.25	1	0.69	646	0.33	0	0.00
Poisoning, Systemic	827	0.45	2	1.39	875	0.45	4	2.69
Silicosis	9	0.00	0	0.00	23	0.02	1	0.67
Asbestosis	5	0.00	2	1.39	13	0.01	0	0.00
Pneumoconioses, NEC	36	0.02	1	0.69	41	0.02	0	0.00
Radiation Effects	834	0.46	1	0.69	891	0.46	0	0.00
Caisson's Disease	2	0.00	0	0.00	2	0.00	0	0.00
Occupational Illnesses, NEC	116	0.06	23	15.97	135	0.07	35	23.49
Total Diseases/Illnesses	6,232	3.41	30	20.83	7,454	3.84	41	27.52
Non-Personal Damage	39	0.02	0	0.00	61	0.03	0	0.00
Preventative Measures	1	0.00	0	0.00	1	0.00	0	0.00
Nature of Injury Unknown	347	0.19	3	2.08	245	0.13	2	1.34
Total	183,020	100.00	144	100.00	194,070	100.00	149	100.00

1. Claims are considered initially settled when there has been no change in the status of the claim for three months past the end of the month of the last status change.

2. Not elsewhere classified.

Source: 1985 figures: Strategic Policy Unit, Occupational Health and Safety Division, Ministry of Labour.
1986 figures: Statistical Services, Workers' Compensation Board of Ontario.

APPENDIX B

Number of Fatalities[1] and Fatalities per Million Man-hours[2] for Major Industries in Ontario, 1983-1986.

	1983 Number of Fatalities Attributed to:			*1984 Number of Fatalities Attributed to:*			*1985 Number of Fatalities Attributed to:*			*1986 Number of Fatalities Attributed to:*	
Industry[3]	*Occupational Disease*	*Trauma*	*Fatalities per Million Man-Hours*	*Occupational Disease*	*Trauma*	*Fatalities per Million Man-Hours*	*Occupational Disease*	*Trauma*	*Fatalities per Million Man-Hours*	*Occupational Disease*	*Trauma*
Agriculture	1	8	0.13	3	6	0.13	0	6	0.08	0	4
Forestry	0	9	0.49	0	7	0.35	0	6	0.32	0	7
Mining; Quarrying and Oil Wells	14	5	0.26	15	15	0.39	7	7	0.19	27	13
Manufacturing	18	35	0.03	19	29	0.02	10	43	0.02	21	26
Construction	10	20	0.12	2	27	0.11	8	19	0.09	9	30
Transportation, Communication and Other Utilities	1	25	0.17	1	16	0.10	1	14	0.09	3	23
Trade	0	10	0.01	0	10	0.01	1	7	0.01	2	5
Community, Business and Personal Service	1	9	0.01	1	7	*	3	5	*	1	8
Public Administration	1	1	0.02	0	0	0.00	2	3	0.06	1	1
Others (Fishing)	0	3	2.61	0	1	0.93	0	0	0.00	0	0
All Industries (Schedule I Firms only)	46	125	0.03	41	118	0.03	32	110	0.02	64	117
All Industries (Schedule I & II Firms)	51	146	–	47	129	–	35	122	–	66	127

1. Fatalities include those who received first payment of compensation in 1983, 1984, 1985 and 1986 and were dead by following year-end. 1986 data are provisional.
2. Man-hour figures were derived from the Workers' Compensation Board 'Y277 Final Accident Frequency and Cost Rate by Rate Number Report' for each year. 1986 Y277 man-hour data not available at time of printing.
3. WCB rate groups have been allocated to Statistics Canada's Economic Divisions.

* Represents less than 0.005.

Source: Strategic Policy Unit of the Occupational Health and Safety Division, Ministry of Labour.

APPENDIX C
Number of Injuries[1] per Million Man-hours for Injuries Occurring in Ontario in 1975-1985, Classified by Major Industry.

Industry[2]	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
Agriculture	28.41	33.81	32.28	33.52	34.84	36.00	36.08	35.81	40.30	44.66	42.44
Forestry and Logging	79.35	70.30	79.05	85.91	79.46	82.39	83.82	74.00	89.84	89.56	74.92
Mining, Quarries and Oil Wells	63.66	68.32	63.65	53.24	47.12	62.12	56.23	45.84	45.44	43.53	38.86
Manufacturing	32.09	34.00	33.90	34.05	37.25	38.67	36.88	29.92	30.51	35.11	37.30
Construction	51.77	64.02	62.11	62.16	65.67	74.88	68.68	49.04	49.55	51.43	52.64
Transportation and Communication	50.93	55.27	55.71	57.16	64.05	65.27	62.05	53.75	53.00	58.29	60.05
Trade, Wholesale and Retail Services	16.92	18.05	18.09	18.35	18.96	19.15	18.16	16.92	17.29	18.64	19.68
Services											
Hospital	9.67	19.73	19.84	19.88	21.81	23.71	22.76	18.96	19.91	21.17	21.21
Teaching	8.56	9.16	9.23	8.82	9.78	10.43	10.67	7.87	7.20	8.65	9.08
Other	9.36	10.29	10.57	10.61	11.53	12.61	11.91	12.44	13.17	13.98	14.85
Public Administration	27.71	30.43	31.70	31.11	32.32	33.82	31.17	32.78	33.56	32.45	30.51
Others (Fishing)	40.85	33.51	37.49	38.20	24.25	35.70	28.16	31.75	39.20	33.58	54.92
All Industries (Schedule I Firms)	25.73	29.02	28.40	28.07	29.89	31.17	29.37	25.09	25.66	28.32	29.30

1. Disabling injury claims with accident dates for a given year (e.g. 1985) compensated by the end of the following year (e.g. 1986). Number of claims and man-hours were derived from the Workers' Compensation Board "Final Accident Frequency and Cost Rate Report" for each year.

2. WCB rate groups have been allocated to Statistics Canada's Economic Divisions.

Sources: 1975 to 1981 figures – Research Branch, Ministry of Labour.
1982 figures – Canadian Centre for Occupational Health and Safety.
1983 and 1984 figures – Strategic Policy Unit of the Occupational Health and Safety Division, Ministry of Labour.
1985 Statistical Services, Workers' Compensation Board of Ontario.

APPENDIX C-1
Number of Injuries[1] Occurring in Ontario in 1975-1985, Classified by Major Industry.

Industry[2]	*1975*	*1976*	*1977*	*1978*	*1979*	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*
Agriculture	2,059	2,145	2,178	2,419	2,481	2,726	2,703	2,474	2,874	3,092	3,007
Forestry and Logging	1,540	1,206	1,449	1,721	1,784	1,786	1,663	1,222	1,655	1,770	1,389
Mining, Quarries and Oil Wells	5,654	6,234	5,480	3,877	3,183	4,451	4,056	3,419	3,315	3,387	2,876
Manufacturing	66,663	70,809	68,676	69,161	79,000	77,272	73,924	62,349	62,016	76,779	86,009
Construction	16,959	18,933	16,791	15,538	15,162	15,161	14,562	12,480	12,465	13,473	15,034
Transportation and Communication	6,880	7,421	7,511	7,703	8,525	8,581	8,403	7,924	7,967	9,520	10,381
Trade, Wholesale and Retail Services	11,752	12,932	12,835	13,243	17,472	14,652	14,452	13,391	13,737	15,776	17,823
Services											
Hospital	5,144	5,150	5,500	5,592	6,278	7,005	7,334	7,377	7,654	8,631	9,343
Teaching	585	904	1,180	1,121	1,172	1,103	1,156	1,237	1,237	1,513	1,857
Other	8,072	9,190	9,687	10,028	11,414	12,648	12,526	12,295	12,961	14,711	17,081
Public Administration	2,431	2,615	2,892	2,829	2,694	2,504	2,335	2,449	2,714	2,535	2,455
Others (Fishing)	35	28	31	36	27	37	35	34	45	36	49
All Industries (Schedule I Firms)	127,774	137,567	134,210	133,268	146,192	147,926	143,139	126,646	128,646	151,223	167,304

1. Disabling injury claims with accident dates for a given year (e.g. 1985) compensated by the year end of the following year (e.g. 1986). Number of claims were derived from the Workers' Compensation Board 'Final Accident Frequency and Cost Rate by Rate Number Report' for each year.

2. WCB rate groups have been allocated to Statistics Canada's Economic Divisions.

Sources: 1975 to 1981 figures - Research Branch, Ministry of Labour.
1982 figures - Canadian Centre for Occupational Health and Safety.
1983 and 1984 figures - Strategic Policy Unit of the Occupational Health and Safety Division, Ministry of Labour.
1985 figures - Statistical Services, Workers' Compensation Board of Ontario.

APPENDIX D

Number of Disabling Injuries and Estimated Disabling Injuries per 100 Employees for Major Occupations in Ontario, Initially Settled[1] in 1984, 1985 and 1986

Occupation[2]	*Non-Fatal and Fatal Injuries 1984*	*Estimated Employment Covered by WCB (000)*[3] *1984*	*Estimated Injuries per 100 Employees Covered by WCB 1984*	*Non-Fatal and Fatal Injuries 1985*	*Estimated Employment Covered by WCB (000)*[3] *1985*	*Estimated Injuries per 100 Employees Covered by WCB 1985*	*Non-Fatal and Fatal Injuries 1986*	*Estimated Employment Covered by WCB (000)*[3] *1986*	*Estimated Injuries per 100 Employees Covered by WCB 1986*
Managerial	680	459	0.15	748	505	0.15	823	540	0.15
Natural Sciences	1,032	157	0.66	1,224	170	0.72	1,188	159	0.75
Social Sciences	774	63	1.23	866	74	1.17	985	73	1.35
Religion	5	10	0.05	5	11	0.05	1	12	0.01
Teaching	1,149	161	0.71	1,339	161	0.83	1,367	173	0.79
Medicine and Health	6,296	176	3.58	6,932	190	3.65	7,213	184	3.91
Artistic and Recreational	323	72	0.45	378	76	0.50	434	75	0.58
Clerical	10,081	703	1.43	10,753	721	1.49	11,487	719	1.60
Sales	4,828	383	1.26	5,450	378	1.44	5,637	413	1.36
Services	18,721	484	3.87	21,356	511	4.18	22,191	515	4.31
Agriculture	3,155	83	3.80	3,334	83	4.01	3,317	82	4.06
Fishing, Hunting, Trapping	42	*	*	47	*	*	50	*	*
Forestry and Logging	1,491	12	12.43	1,493	9	16.59	1,325	8	17.67
Mining and Quarrying	1,658	16	10.36	1,405	17	8.26	1,359	18	7.77
Processing	11,552	133	8.65	13,017	131	9.96	13,949	131	10.62
Machining	13,478	105	12.80	15,831	109	14.52	17,339	110	15.73
Product Fabricating	24,362	414	5.88	29,180	408	7.16	31,753	436	7.28
Construction Trades	15,082	201	7.49	16,392	206	7.95	17,671	235	7.53
Transport Equipment Operation	12,311	133	9.29	13,713	147	9.35	13,870	145	9.59
Materials Handling	9,683	101	9.62	11,269	107	10.50	12,740	121	10.53
Other Crafts and Equipment Operation	1,768	57	3.08	1,862	57	3.25	2,341	66	3.53
Not Stated	12,071	–	–	12,960	–	–	14,915	–	–
Occupations, NEC[4]	13,491	–	–	13,610	–	–	12,264	–	–
Total Schedule I and II firms	164,033	3,924	4.18	183,164	4,072	4.50	194,219	4,216	4.61

* Labour Force employment estimates less than 4,000 are not reported.

1. Claims are considered initially settled when there has been no change in the status of the claim for three months past the end of the month of the last status change.
2. From the *Canadian Classification and Directory of Occupations* as used by WCB.
3. Employment figures are derived from Statistics Canada Labour Force Survey, 1984, 1985 and 1986. WCB estimates that approximately 92.5% of the total employed labour force is covered under the provisions of the Worker's Compensation Act. The estimates provided make allowances for some occupations where the coverage may be higher (e.g. mining) and lower (e.g. agriculture).
4. NEC – Not elsewhere classified.

Source: Statistical Services, Workers' Compensation Board of Ontario and
Health Studies Service, Occupational Health and Safety Division, Ministry of Labour.

Note: Data appearing in Appendix D in previous years were based on first payment of compensation rather than initial settlement.

APPENDIX D-1

Selected Occupations Defined by Subgroup from the Classification and Dictionary of Occupations as used by WCB

1. *Mining* and quarrying including oil and gas field operations have the following occupational groups included: foremen, rotary well-drilling, other rock and soil drilling, blasting, cutting, handling and loading, labouring and other elemental work, and not elswhere classified (NEC).

2. *Machining* and related occupations have these groups included: foremen *metal machining*: tool and die making, machinist and machine tool setup, machine tool operating; *metal shaping and forming*: forging, sheet metal workers; welding and flame cutting, boilermakers, platers and structural metal workers; foremen *wood machining*: wood pattern making, wood sawing and related work, wood sanding; foremen *clay, glass and stone and related materials*: cutting and shaping, abrading and polishing; foremen *other machining* and related work, engravers and etchers, filing, grinding, buffing, cleaning and polishing work, inspecting, testing, grading and sampling occupations.

3. *Forestry* includes these groups of occupations: foremen forestry and logging, forestry conservation, timber cutting, log hoisting, sorting, moving, labouring, forestry and logging NEC, log inspecting, grading and scaling.

4. *Materials handling* has these occupations grouped together: foremen materials handling NEC, hoisting operations NEC, longshoremen, stevedores and freight handlers, materials handling equipment operators NEC, packaging, labouring in materials handling work.

5. *Processing* occupations are composed of: *mineral ore*: treating, crushing and grinding, mixing, filtering, melting and roasting; *metal processing*: smelting, converting and refining, metal heat treating, metal rolling, moulding, coremaking and metal casting, metal extruding and drawing, plating and metal spraying; *clay, glass and stone* furnacemen and kilnmen, separating, grinding, crushing and mixing, forming; *chemicals, petroleum, rubber, plastic and related materials*: mixing and blending, filtering, straining and separating, distilling, subliming and carbonizing, coating and calendarizing; *food, beverage and related*: flour and grain milling, baking, confectionery making, slaughtering and meat cutting, canning, curing and packing, fish canning, curing and packing, fruit and vegetable canning, preserving and packing, milk processing, sugar processing, beverage processing; *Wood*: sawmill sawyers, plywood making, wood treating; *Pulp and paper making*: cellulose preparing, papermaking and finishing; *Textiles*: fibre preparing, spinning, winding, weaving, knitting, bleaching, finishing; *Other*: tobacco, hide and pelt. Foremen, inspecting, testing and grading, elemental labour in all above groups.

6. *Transportation and Equipment* operating occupations have the following sub-groups: air transport, railway transport, water transport, motor transport and the specific occupations in each.

7. *Construction* has these sub-groups: excavating, grading and paving, electrical power, lighting and wire communications equipment erecting, installing and repairing and construction trades—carpenters, brick and stone masons, concrete finishing, plasterers, painters and paper hangers, insulating, roofing, pipe-fitting, structural metal erectors, glazers. Foremen inspecting, testing, grading and sampling, and elemental labour are included in the above where appropriate.

8. *Product fabricating* classification is composed of: metal products; electrical, electronic and related equipment; wood products; textile, fur and leather products; rubber, plastic and related products; mechanics and repairmen except electrical; and other: jewellery and silverware, marine craft, paper products, and painting and decorating.

APPENDIX E
Temporary Total Days Lost Up to Initial Settlement for Industries in Ontario 1981-1986[1]

	1981	*1982*	*1983*	*1984*	*1985*	*1986*
	(000)	*(000)*	*(000)*	*(000)*	*(000)*	*(000)*
Agriculture	77.1	86.1	93.9	110.4	103.2	120.7
Forestry		49.8	69.8	85.1	83.9	100.6
Fishing/Trapping	0.5	0.4	1.6	1.0	1.5	2.2
Mines, Quarries and Oil Wells	108.9	134.4	180.9	179.6	160.6	164.9
Manufacturing	1,582.9	1,714.8	1,896.7	2,331.9	2,427.0	2,631.0
Construction	615.0	636.7	810.5	934.9	900.0	964.0
Transportation, Communications and Other Utilities	340.3	409.3	468.1	587.3	578.7	637.9
Trade	486.9	526.5	582.8	735.5	771.5	833.1
Services*	538.4	620.6	699.3	881.6	938.9	105.0
Public administration	293.7	276.9	295.0	348.0	389.0	365.8
Unknown	1.0	–	1.0	0.0	–	–
Total**	4,089.5	4,455.4	5,099.6	6,195.3	6,354.2	6,872.6

*Services includes SIC categories Finance, Insurance, Real Estate and Community, Business and Personal Services.

**Total may not add due to rounding.

1. Shows days lost due to temporary total disability up to initial settlement for claims initially settled in year indicated, by industry (SIC Major Division). Days lost due to death, permanent disability and for medical aid only and light duty (temporary partial disability) are not included.

Source: 1981-83: Canadian Centre for Occupational Health and Safety – from WCB's Statistics System.
1984-86: Statistical Services, Workers' Compensation Board of Ontario.

Note: Industry categories in Table E are based on Standard Industrial Classification groupings and differ from industry categories shown in Tables B, C and C-1 which are based on WCB rate groups.

APPENDIX F
Temporary Total Days Lost Up to Initial Settlement by Occupation in Ontario 1981-1986[1]

	1981	*1982*	*1983*	*1984*	*1985*	*1986*
	(000)	*(000)*	*(000)*	*(000)*	*(000)*	*(000)*
Managerial, Professional	22.8	21.6	23.3	25.1	23.7	30.1
Natural Science	18.4	22.6	30.8	32.3	30.8	28.3
Social Science	13.0	12.4	12.6	19.2	20.4	22.0
Religion	0.4	0.2	0.9	0.1	0.8	*
Teaching	12.9	11.3	16.0	17.7	18.5	23.5
Medicine and Health	117.6	149.9	163.4	212.7	230.6	260.4
Artistic and Recreational	7.0	9.8	8.4	10.3	9.9	10.7
Clerical	162.8	171.3	199.9	245.1	264.5	272.1
Sales	103.6	101.5	122.0	140.8	159.4	184.4
Service	381.4	431.0	487.4	603.7	637.9	663.8
Agriculture	85.3	97.3	101.2	129.3	121.7	139.1
Fishing, Hunting, Trapping	0.6	1.0	0.9	1.0	2.1	2.1
Forestry and Logging	59.1	61.4	78.0	89.7	89.2	99.6
Mining and Quarrying	70.2	80.2	114.6	104.5	93.0	98.1
Processing	289.3	319.0	350.3	428.2	425.4	475.1
Machining	363.4	382.6	401.8	483.4	495.8	523.0
Product Fabricating	599.2	649.3	713.7	871.3	942.8	1,043.9
Construction Trades	600.0	629.8	798.4	901.5	878.7	954.9
Transport Equipment Operation	342.4	376.0	432.6	523.8	537.6	587.0
Material Handling	233.9	239.7	265.4	353.7	332.1	395.0
Other Craft and Equipment Operation	36.4	42.4	41.5	50.1	50.4	59.0
Not Stated	244.0	295.3	364.1	485.7	513.7	564.4
Occupation, NEC	325.3	349.8	372.3	466.0	475.2	436.2
Totals**	4,089.5	4,455.4	5,099.6	6,195.3	6,354.2	6,872.6

*Represents less than 50.

**Totals may not add due to rounding.

1. Shows days lost due to temporary total disability up to initial settlement for claims initially settled in year indicated, by occupation (OCM 2-digit). Days lost due to death, permanent disability and for medical aid only and light duty (temporary partial disability) are not included.

Source: 1981-83: Canadian Centre for Occupational Health and Safety — from WCB's Statistics System.
1984-86: Statistical Services, Workers' Compensation Board of Ontario.

APPENDIX G
Temporary Total Days Lost Up to Initial Settlement by Nature of Injury in Ontario 1981-1986[1]

	1981	1982	1983	1984	1985	1985
	(000)	(000)	(000)	(000)	(000)	(000)
Traumatic Injuries						
Amputation, enucleation	61.1	64.8	54.7	67.2	46.0	54.7
Asphyxia, strangulation, drowning	*	*	*	*	*	*
Burn, scald	49.0	51.1	46.9	58.4	59.9	53.5
Concussion	17.5	16.7	22.3	19.9	20.6	20.2
Contusion, bruise	358.8	374.2	423.6	566.4	775.8	940.4
Cut, laceration	287.6	300.0	293.6	356.4	382.5	393.4
Dislocation	29.9	32.3	34.0	33.2	32.5	43.5
Electric shock	6.9	6.4	6.7	7.5	8.2	6.6
Fracture	467.7	500.0	524.7	560.7	518.6	530.3
Hernia, rupture	68.0	70.0	65.9	69.8	70.9	77.7
Scratches, abrasion	28.6	24.9	25.8	32.7	33.5	34.6
Sprain, strain	1,554.1	1,720.8	1,937.6	2,659.0	2,941.1	3,574.8
Multiple injuries	96.9	99.1	124.9	121.6	121.9	126.2
Occupational injuries, unspecified	903.4	1,000.0	1,332.9	1,377.7	1,116.6	772.8
Occupational injuries, NEC	0.7	2.1	4.5	4.5	3.8	3.7
Total Traumatic Injuries	3,930.2	4,262.4	4,898.1	5,935.0	6,131.9	6,632.4
Occupational Diseases/Illnesses						
Burn, chemical	10.0	8.6	13.0	10.1	10.4	11.5
Tuberculosis	0.7	0.1	*	0.3	0.4	0.1
Tuberculosis and pneumoconiosis	*	*	0	0.1	0	0.2
Contagious, infectious disease, NEC	2.3	4.4	6.9	6.2	4.9	3.9
Dermatitis	10.8	13.4	17.1	19.6	17.9	19.8
Freezing, frostbite	1.3	1.1	1.2	3.0	1.3	1.9
Hearing loss or impairment	0.1	*	*	0.6	*	0.1
Heat, sunstroke	0.1	0.2	0.1	0.2	*	*
Bursitis	0.6	0.6	1.4	1.6	1.7	3.0
Synovitis, tenosynovitis	16.0	22.2	23.3	31.1	39.8	68.2
Inflammation, irritation of joints, tendons, etc., NEC	9.0	9.4	13.9	23.2	25.2	41.4
Poisoning, systemic	6.7	9.0	6.9	5.8	9.6	11.2
Silicosis	0.8	*	0.1	0.6	*	0.7
Asbestosis	0.2	1.1	*	1.4	0.2	0.1
Pneumoconioses, NEC	1.5	2.1	1.7	2.8	2.6	2.5
Radiation effects	2.7	4.5	3.4	2.4	2.7	2.6
Caisson's disease	*	*	0.4	*	*	0.1
Occupational illnesses, NEC	11.8	11.1	11.9	16.9	15.0	17.1
Total Diseases/Illnesses	74.6	87.8	101.3	125.9	131.7	184.4
Non-personal damage	0.5	0.1	0.4	0.5	0.4	0.5
Preventative measures	*	*	*	*	*	0.1
Unknown	84.1	104.9	99.7	133.7	90.1	55.2
Total**	4,089.5	4,455.4	5,099.6	6,195.3	6,354.2	6,872.6

*Represents less than 50.

**Totals may not add due to rounding of the data.

1. Shows days lost due to temporary total disability up to initial settlement for claims initially settled in year indicated, by nature of injury. Days lost due to death, permanent disability and for medical aid only and light duty (temporary partial disability) are not included. There is no imputation for fatalities.

Source: 1981-83: Canadian Centre for Occupational Health and Safety – from WCB's Statistics System
1984-86: Workers' Compensation Board of Ontario.

APPENDIX H

Count of Fatal and Non-Fatal and Days of Temporary Total Disability[1] by SIC[2] for Disabling Injury Claims Initially Settled in 1985 and 1986 – WCB Schedule I Employers

	1985				1986			
	Number of Claims			Days of Temporary	Number of Claims			Days of Temporary
INDUSTRY	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*
011 Livestock and Livestock Combination Farms	0	450	450	16.7	2	425	427	18.7
013 Field Crop and Field Crop Combination Farms	0	507	507	28.0	0	463	463	33.9
015 Fruit and Vegetable Farms	2	215	217	8.3	2	233	235	12.4
017 Other Crop and Livestock Combination Farms	1	560	561	29.0	0	510	510	28.5
019 Miscellaneous Specialty Farms	1	513	514	16.7	0	576	576	20.0
02 Farms (except Experimental and Institutional Farms)	*4*	*2,245*	*2,249*	*98.7*	*4*	*2,207*	*2,211*	*113.6*
021 Services Incidental to Agriculture	1	224	225	4.5	0	295	295	7.1
03 Services Incidental to Agriculture	*1*	*224*	*225*	*4.5*	*0*	*295*	*295*	*7.1*
01 Agriculture	**5**	**2,469**	**2,474**	**103.2**	**4**	**2,502**	**2,506**	**120.7**
031 Logging	2	1,336	1,338	83.4	5	1,159	1,164	100.2
01 Logging	*2*	*1,336*	*1,338*	*83.4*	*5*	*1,159*	*1,164*	*100.2*
039 Forestry Services	0	27	27	0.5	0	20	20	0.4
02 Forestry Services	*0*	*27*	*27*	*0.5*	*0*	*20*	*20*	*0.4*
02 Forestry	**2**	**1,363**	**1,365**	**83.9**	**5**	**1,179**	**1,184**	**100.6**
041 Fishing	0	36	36	1.2	1	36	37	2.1
01 Fishing	*0*	*36*	*36*	*1.2*	*1*	*36*	*37*	*2.1*
045 Fishery Services	0	3	3	0.0	0	2	2	0.1
02 Fishery Services	*0*	*3*	*3*	*0.0*	*0*	*2*	*2*	*0.1*
047 Hunting and Trapping	0	4	4	0.3	0	2	2	0.0
03 Hunting and Trapping	*0*	*4*	*4*	*0.3*	*0*	*2*	*2*	*0.0*
03 Fishing and Trapping	**0**	**43**	**43**	**1.5**	**1**	**40**	**41**	**2.2**

(continued)

APPENDIX H *(continued)*

	1985				1986			
	Number of Claims			Days of Temporary	Number of Claims			Days of Temporary
INDUSTRY	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*
051 Placer Gold Mines	0	13	13	2.2	0	5	5	0.1
052 Gold Quartz Mines	1	261	262	14.9	3	237	240	18.4
057 Uranium Mines	7	389	396	24.6	9	434	443	28.0
058 Iron Mines	0	28	28	1.1	0	29	29	0.9
059 Miscellaneous Metal Mines	5	1,025	1,030	79.9	8	861	869	73.3
01 Metal Mines	*13*	*1,716*	*1,729*	*122.8*	*20*	*1,566*	*1,586*	*120.6*
061 Coal Mines	0	0	0	0.0	1	1	2	0.8
064 Crude Petroleum and Natural Gas Industry	0	13	13	0.2	0	10	10	0.3
02 Mineral Fuels	*0*	*13*	*13*	*0.2*	*1*	*11*	*12*	*1.1*
071 Asbestos Mines	0	2	2	0.0	0	6	6	0.1
072 Peat Extraction	0	5	5	0.0	0	7	7	0.0
073 Gypsum Mines	0	2	2	0.0	0	5	5	0.0
079 Miscellaneous Non Metal Mines	2	112	114	3.1	0	111	111	5.3
03 Non-Metal Mines (Except Coal Mines)	*2*	*121*	*123*	*3.1*	*0*	*129*	*129*	*5.4*
083 Stone Quarries	0	80	80	4.6	0	75	75	3.8
087 Sand Pits or Quarries	0	200	200	10.7	1	211	212	10.3
04 Quarries and Sand Pits	*0*	*280*	*280*	*15.4*	*1*	*286*	*287*	*14.1*
096 Contract Drilling for Petroleum	1	19	20	1.1	0	14	14	0.2
098 Other Contract Drilling	1	131	132	7.8	0	123	123	7.4
099 Miscellaneous Services Incidental to Mining	1	189	190	10.2	2	193	195	16.0
05 Services Incidental to Mining	*3*	*339*	*342*	*19.2*	*2*	*330*	*332*	*23.7*
04 Mines (Including Milling), Quarries and Oil Wells	**18**	**2,469**	**2,487**	**160.6**	**24**	**2,322**	**2,346**	**164.9**
101 Meat and Poultry Products Industries	0	2,517	2,517	100.1	1	2,428	2,429	97.1
102 Fish Products Industry	2	96	98	2.0	0	107	107	3.1
103 Fruit and Vegetable Processing Industries	1	932	933	32.8	0	935	935	29.7
104 Dairy Products Industry	0	861	861	30.7	0	820	820	26.6
105 Flour and Breakfast Cereal Products Industry	0	166	166	6.9	0	165	165	5.1
106 Feed Industry	0	340	340	8.5	0	342	342	8.1
107 Bakery Products Industries	0	1,089	1,089	47.6	1	1,131	1,132	49.7
108 Miscellaneous Food Industries	0	1,221	1,221	45.0	0	1,351	1,351	50.9
109 Beverage Industries	0	1,174	1,174	31.4	1	1,283	1,284	29.7
01 Food and Beverage Industries	*3*	*8,396*	*8,399*	*304.9*	*3*	*8,562*	*8,565*	*300.0*

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
151 Leaf Tobacco Processors	0	27	27	0.3	0	15	15	0.5
153 Tobacco Products Manufacturers	0	99	99	3.2	0	102	102	2.3
02 Tobacco Products Industries	*0*	*126*	*126*	*3.5*	*0*	*117*	*117*	*2.8*
162 Rubber Products Industries	0	1,472	1,472	44.9	0	1,548	1,548	61.0
165 Plastics Fabricating Industry NES	1	3,001	3,002	94.1	1	3,216	3,217	99.9
03 Rubber and Plastics Products Industries	*1*	*4,473*	*4,474*	*139.0*	*1*	*4,764*	*4,765*	*160.9*
172 Leather Tanneries	0	156	156	5.8	0	172	172	7.7
174 Shoe Factories	1	322	323	13.9	0	323	323	13.7
175 Leather Glove Factories	0	18	18	1.2	0	16	16	1.5
179 Luggage Handbag and Small Leather Goods Manufacturers	0	276	276	6.0	0	281	281	10.2
04 Leather Industries	*1*	*772*	*773*	*26.9*	*0*	*792*	*792*	*33.1*
181 Cotton Yarn and Cloth Mills	0	156	156	5.6	0	175	175	6.7
182 Wool Yarn and Cloth Mills	0	136	136	4.8	0	125	125	5.6
183 Manmade Fibre Yarn and Cloth Mills	0	289	289	7.3	1	299	300	9.5
184 Cordage and Twine Industry	0	8	8	0.1	0	32	32	0.6
185 Felt and Fibre Processing Mills	0	83	83	4.4	0	72	72	4.4
186 Carpet Mat and Rug Industry	0	257	257	8.6	0	268	268	8.9
187 Canvas Products and Cotton and Jute Bags Industry	0	90	90	8.0	0	79	79	4.3
188 Automobile Fabric Accessories Industry	0	167	167	8.6	0	182	182	7.8
189 Miscellaneous Textile Industries	0	601	601	20.8	0	670	670	24.0
05 Textile Industries	*0*	*1,787*	*1,787*	*68.3*	*1*	*1,902*	*1,903*	*71.7*
231 Hosiery Mills	0	134	134	5.6	0	94	94	6.8
239 Knitting Mills Except Hosiery Mills	0	203	203	10.5	0	256	256	7.8
06 Knitting Mills	*0*	*337*	*337*	*16.1*	*0*	*350*	*350*	*14.6*
243 Men's Clothing Industries	0	440	440	20.5	0	472	472	22.5
244 Women's Clothing Industries	0	229	229	12.0	0	192	192	10.7
245 Children's Clothing Industry	0	56	56	3.3	0	45	45	2.7
246 Fur Goods Industry	0	8	8	1.5	0	8	8	0.6
248 Foundation Garment Industry	0	19	19	0.4	0	31	31	1.2
249 Miscellaneous Clothing Industries	0	236	236	10.7	0	249	249	10.3
07 Clothing Industries	*0*	*988*	*988*	*48.3*	*0*	*997*	*997*	*48.0*

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
251 Sawmills Planing Mills and Shingle Mills	3	791	794	27.7	0	970	971	39.9
252 Veneer and Plywood Mills	1	114	115	4.1	0	140	140	6.2
254 Sash Door and Other Millwork Plants	1	1,053	1,054	32.1	0	1,337	1,337	33.6
256 Wooden Box Factories	0	262	262	7.6	0	281	281	6.5
258 Coffin and Casket Industry	0	24	24	0.2	0	25	25	0.4
259 Miscellaneous Wood Industries	0	424	424	14.7	0	479	479	15.3
08 Wood Industries	*5*	*2,668*	*2,673*	*86.4*	*1*	*3,232*	*3,233*	*101.9*
261 Household Furniture Manufacturers	0	1,423	1,423	55.8	0	1,558	1,558	63.2
264 Office Furniture Manufacturers	0	355	355	10.4	0	464	464	9.3
266 Miscellaneous Furniture and Fixtures Manufacturers	1	688	689	25.9	0	926	926	27.3
268 Electric Lamp and Shade Manufacturers	0	46	46	1.2	0	49	49	1.8
09 Furniture and Fixture Industries	*1*	*2,512*	*2,513*	*93.3*	*0*	*2,997*	*2,997*	*101.6*
271 Pulp and Paper Mills	2	786	788	41.2	1	779	780	51.7
272 Asphalt Roofing Manufacturers	0	30	30	1.0	0	35	35	1.2
273 Paper Box and Bag Manufacturers	0	884	884	31.6	1	959	960	30.8
274 Miscellaneous Paper Converters	1	799	800	27.7	0	818	818	25.9
10 Paper and Allied Industries	*3*	*2,499*	*2,502*	*101.5*	*2*	*2,591*	*2,593*	*109.6*
286 Commercial Printing	1	1,323	1,324	32.2	0	1,462	1,462	36.1
287 Platemaking Typesetting and Trade Industries	0	154	154	4.6	0	152	152	2.9
288 Publishing Only	0	160	160	4.3	0	134	134	3.9
289 Publishing and Printing	1	289	290	5.8	0	334	334	7.0
11 Printing Publishing and Allied Industries	*2*	*1,926*	*1,928*	*46.8*	*0*	*2,082*	*2,082*	*49.9*
291 Iron and Steel Mills	7	2,663	2,670	126.2	3	2,792	2,795	134.7
292 Steel Pipe and Tube Mills	0	358	358	12.3	0	323	323	11.8
294 Iron Foundries	0	868	868	23.3	1	915	916	22.2
295 Smelting and Refining	0	269	269	16.5	0	133	133	15.0
296 Aluminum Rolling Casting and Extruding	0	428	428	11.4	0	424	424	13.3
297 Copper and Copper Alloy Rolling Casting and Extruding	1	250	251	9.5	1	241	242	4.6
298 Metal Rolling Casting and Extruding NES	1	506	507	14.5	1	615	616	17.2
12 Primary Metal Industries	*9*	*5,342*	*5,351*	*213.8*	*6*	*5,443*	*5,449*	*218.7*

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985				1986			
	Number of Claims			Days of Temporary	Number of Claims			Days of Temporary
	Fatal	Non-Fatal	Total	Total Disability (000)	Fatal	Non-Fatal	Total	Total Disability (000)
301 Boiler and Plate Works	2	287	289	11.4	0	390	390	11.2
302 Fabricated Structural Metal Industry	0	759	759	33.4	0	876	876	39.4
303 Ornamental and Architectural Metal Industry	0	890	890	34.4	0	975	975	36.5
304 Metal Stamping Pressing and Coating Industry	1	2,539	2,540	78.1	2	3,089	3,091	94.3
305 Wire and Wire Products Manufacturers	1	868	869	28.8	0	973	973	29.6
306 Hardware Tool and Cutlery Manufacturers	0	1,324	1,324	36.2	1	1,570	1,571	42.0
307 Heating Equipment Manufacturers	0	406	406	10.6	0	492	492	12.3
308 Machine Shops	0	1,203	1,203	34.8	0	1,367	1,367	40.7
309 Miscellaneous Metal Fabricating Industries	0	2,252	2,252	62.7	0	2,312	2,312	69.8
13 Metal Fabricating Ind. (Except Machinery and Transportation Eqpt.)	*4*	*10,528*	*10,532*	*330.4*	*3*	*12,044*	*12,047*	*375.8*
311 Agricultural Implement Industry	0	503	503	21.0	0	482	482	29.2
315 Miscellaneous Machinery and Equipment Manufacturing	1	3,011	3,012	89.5	4	3,414	3,418	92.1
316 Commercial Refrigeration & Air Conditioning Equipment	0	181	181	5.8	0	200	200	6.1
318 Office and Store Machinery Manufacturers	0	193	193	3.4	0	199	199	3.6
14 Machinery Industries (Except Electrical Machinery)	*1*	*3,888*	*3,889*	*119.7*	*4*	*4,295*	*4,299*	*131.0*
321 Aircraft and Aircraft Parts Manufacturers	0	882	882	26.0	0	1,232	1,232	34.3
323 Motor Vehicle Manufacturers	0	7,532	7,532	271.9	1	8,109	8,110	292.6
324 Truck Body and Trailer Manufacturers	0	834	834	24.7	1	1,077	1,078	25.8
325 Motor Vehicle Parts and Accessories Manufacturers	1	5,505	5,506	151.0	2	5,840	5,842	170.6
326 Railroad Rolling Stock Industry	0	343	343	10.6	0	530	530	22.4
327 Shipbuilding and Repair	0	100	100	5.1	0	128	128	4.0
328 Boatbuilding and Repair	0	204	204	4.4	0	317	317	4.8
329 Miscellaneous Vehicle Manufacturers	0	69	69	0.7	0	71	71	1.5
15 Transportation Equipment Industries	*1*	*15,469*	*15,470*	*494.4*	*4*	*17,304*	*17,308*	*556.2*
331 Manufacturers of Small Electric Appliances	0	272	272	16.2	1	247	248	14.1
332 Manufacturers of Major Appliances Electric & Equipment	1	518	519	23.5	0	577	577	28.0
333 Manufacturers of Lighting Fixtures	0	129	129	4.8	1	179	180	5.4
334 Manufacturers of Household Radio and Television	0	224	224	6.3	0	272	272	7.7
335 Communications Equipment Manufacturers	0	866	866	22.2	1	656	657	18.9

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
336 Manufacturers of Electrical Industrial Equipment	0	868	868	39.3	1	1,088	1,089	40.4
338 Manufacturers of Electric Wire and Cable	0	152	152	4.6	0	120	120	6.2
339 Manufacturers of Miscellaneous Electrical Products	0	524	524	15.8	0	652	652	19.4
16 Electrical Products Industries	*1*	*3,553*	*3,554*	*132.8*	*4*	*3,791*	*3,795*	*140.3*
351 Clay Products Manufacturers	0	127	127	4.3	0	151	151	4.8
352 Cement Manufacturers	0	71	71	2.4	1	70	71	3.4
353 Stone Products Manufacturers	0	24	24	1.0	0	36	36	1.7
354 Concrete Products Manufacturers	1	481	482	16.3	1	565	566	23.5
355 Ready Mix Concrete Manufacturers	0	258	258	13.8	3	307	310	12.3
356 Glass and Glass Products Manufacturers	0	812	812	25.3	1	877	878	31.9
357 Abrasives Manufacturers	0	179	179	6.5	0	137	137	5.6
358 Lime Manufacturers	0	8	8	0.2	0	5	5	2.0
359 Miscellaneous Non Metallic Mineral Products Industries	0	557	557	16.7	2	529	531	17.4
17 Non-Metallic Mineral Products Industries	*1*	*2,517*	*2,518*	*86.5*	*8*	*2,677*	*2,685*	*102.7*
365 Petroleum Refineries	0	123	123	3.5	1	94	95	3.6
369 Miscellaneous Petroleum and Coal Products Industries	0	21	21	1.9	0	15	15	0.7
18 Petroleum and Coal Products Industries	*0*	*144*	*144*	*5.4*	*1*	*109*	*110*	*4.3*
372 Manufacturers of Mixed Fertilizers	0	48	48	0.8	0	34	34	2.1
373 Manufacturers of Plastics and Synthetic Resins	0	123	123	5.1	1	167	168	3.6
374 Manufacturers of Pharmaceuticals and Medicines	0	289	289	9.6	0	309	309	7.4
375 Paint and Varnish Manufacturers	0	212	212	5.7	0	209	209	7.8
376 Manufacturers of Soap and Cleaning Compounds	0	129	129	3.8	0	158	158	4.9
377 Manufacturers of Toilet Preparations	0	167	167	3.2	0	154	154	4.7
378 Manufacturers of Industrial Chemicals	0	333	333	13.8	2	271	273	10.1
379 Miscellaneous Chemical Industries	0	438	438	11.2	1	511	512	14.3
19 Chemical and Chemical Products Industries	*0*	*1,739*	*1,739*	*53.1*	*4*	*1,813*	*1,817*	*54.8*
391 Scientific and Professional Equipment Industries	0	467	467	14.2	0	459	459	13.6
392 Jewellery and Silverware Industry	0	158	158	3.9	0	166	166	4.9
393 Sporting Goods and Toy Industries	0	261	261	11.0	0	311	311	11.9
397 Signs and Displays Industry	0	247	247	9.6	0	270	270	9.2
399 Miscellaneous Manufacturing Industries NES	1	513	514	15.6	0	469	469	12.4
20 Miscellaneous Manufacturing Industries	*1*	*1,646*	*1,647*	*54.4*	*0*	*1,675*	*1,675*	*52.0*
05 Manufacturing Industries	**34**	**71,310**	**71,344**	**2,425.7**	**42**	**77,537**	**77,579**	**2,630.0**

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
404 Building Construction	7	3,575	3,582	229.4	3	3,761	3,764	230.5
406 Highway Bridge and Street Construction	3	725	728	73.5	0	744	744	65.9
409 Other Construction	7	775	782	60.4	1	878	879	70.2
01 General Contractors	*17*	*5,075*	*5,092*	*363.3*	*4*	*5,383*	*5,387*	*366.6*
421 Special Trade Contractors	17	9,645	9,662	536.7	18	10,814	10,832	597.3
02 Special-Trade Contractors	*17*	*9,645*	*9,662*	*536.7*	*18*	*10,814*	*10,832*	*597.3*
06 Construction Industry	**34**	**14,720**	**14,754**	**900.0**	**22**	**16,197**	**16,219**	**964.0**
501 Air Transport	0	245	245	4.5	2	349	351	8.8
502 Services Incidental to Air Transport	0	70	70	3.0	0	85	85	2.5
503 Railway Transport	0	26	26	0.7	0	22	22	0.8
504 Water Transport	0	105	105	2.6	0	103	103	1.5
505 Services Incidental to Water Transport	0	83	83	7.4	0	78	78	7.0
506 Moving and Storage Used Goods Uncrated	0	503	503	12.5	1	551	552	16.1
507 Other Truck Transport	9	5,452	5,461	228.5	10	5,477	5,487	241.3
508 Bus Transport Interurban and Rural	0	188	188	6.1	0	188	188	8.4
509 Urban Transit Systems	0	115	115	3.9	0	166	166	3.3
512 Taxicab Operations	0	80	80	5.1	0	72	72	4.1
515 Pipeline Transport	1	18	19	0.7	0	21	21	0.4
516 Highway and Bridge Maintenance	1	49	50	1.3	0	53	53	1.7
517 Miscellaneous Services Incidental to Transportation	0	196	196	5.6	0	209	209	9.2
519 Other Transportation	0	381	381	13.3	0	417	417	18.2
01 Transportation	*11*	*7,511*	*7,522*	*295.1*	*13*	*7,791*	*7,804*	*323.2*
524 Grain Elevators	0	124	124	4.1	0	130	130	5.8
527 Other Storage and Warehousing	0	438	438	13.0	0	459	459	11.1
02 Storage	*0*	*562*	*562*	*17.1*	*0*	*589*	*589*	*16.9*
543 Radio and Television Broadcasting	0	151	151	2.6	1	146	147	2.5
544 Telephone Systems	0	27	27	0.6	0	16	16	0.3
545 Telegraph and Cable Systems	0	10	10	0.1	0	2	2	0.2
548 Post Office	0	15	15	0.1	0	17	17	0.4
03 Communications	*0*	*203*	*203*	*3.4*	*0*	*182*	*182*	*3.4*

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
572 Electric Power	0	316	316	8.1	1	288	289	8.8
574 Gas Distribution	1	238	239	3.6	1	213	214	3.5
576 Water Systems	0	80	80	1.3	0	65	65	1.5
579 Other Utilities	0	310	310	10.3	0	390	390	11.0
04 Electric Power, Gas and Water Utilities	*1*	*944*	*945*	*23.2*	*2*	*956*	*958*	*24.8*
07 Transportation, Communication and Other Utilities	**12**	**9,220**	**9,232**	**338.8**	**16**	**9,517**	**9,533**	**368.3**
602 Wholesalers of Farm Products	0	107	107	3.7	0	137	137	3.3
606 Wholesalers of Coal and Coke	0	25	25	1.1	1	24	25	1.4
608 Wholesalers of Petroleum Products	1	269	270	10.4	1	233	234	7.8
611 Wholesalers of Paper and Paper Products	0	224	224	4.5	0	219	219	4.8
612 Wholesalers of General Merchandise	0	10	10	0.1	0	9	9	0.1
614 Wholesalers of Food	0	1,477	1,477	46.1	2	1,472	1,474	59.7
615 Wholesalers of Tobacco Products	0	62	62	1.0	0	63	63	1.2
616 Wholesalers of Drugs and Toilet Preparations	0	178	178	5.3	0	175	175	4.9
617 Wholesalers of Apparel and Dry Goods	0	225	225	6.9	0	232	232	8.3
618 Wholesalers of Household Furniture and Furnishings	0	79	79	3.9	0	91	91	2.1
619 Wholesalers of Motor Vehicles and Accessories	1	1,313	1,314	37.3	2	1,441	1,443	36.8
621 Wholesalers of Electrical Machinery and Equipment	0	292	292	8.2	0	344	344	9.5
622 Wholesalers of Farm Machinery and Equipment	1	215	216	10.4	0	240	240	6.5
623 Wholesalers of Machinery and Equipment NES	0	1,252	1,252	38.9	0	1,274	1,274	34.1
624 Wholesalers of Hardware Plumbing and Heating	0	474	474	10.6	0	595	595	17.4
625 Wholesalers of Metal and Metal Products NES	0	292	292	10.6	0	371	371	13.5
626 Wholesalers of Lumber and Building Materials	2	1,311	1,313	44.2	2	1,580	1,582	43.3
627 Wholesalers of Scrap and Waste Materials	0	603	603	22.0	1	564	565	21.2
629 Wholesalers NES	0	1,201	1,201	37.4	1	1,233	1,234	42.6
01 Wholesale Trade	*5*	*9,609*	*9,614*	*302.5*	*10*	*10,297*	*10,307*	*318.7*
631 Food Stores	1	4,705	4,706	128.0	1	4,990	4,991	147.9
642 General Merchandise Stores	0	3,374	3,374	79.3	2	3,679	3,681	90.6
652 Tire Battery and Accessories Stores	2	705	707	22.0	0	766	766	17.6
654 Gasoline Service Stations	3	1,548	1,551	51.9	1	1,456	1,457	53.0

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
656 Motor Vehicle Dealers	0	1,159	1,159	25.8	0	1,332	1,332	25.9
658 Motor Vehicle Repair Shops	0	2,065	2,065	52.8	0	2,109	2,109	59.5
663 Shoe Stores	0	151	151	4.8	0	159	159	5.3
665 Men's Clothing Stores	0	158	158	3.5	0	177	177	5.4
667 Women's Clothing Stores	0	105	105	3.4	0	104	104	4.2
669 Clothing and Dry Goods Stores NES	0	128	128	4.9	0	142	142	6.0
673 Hardware Stores	0	174	174	6.0	0	231	231	5.1
676 Household Furniture and Appliance Stores	0	716	716	23.4	1	823	824	27.3
678 Radio Television and Electrical Appliance Repair Shops	0	97	97	4.9	0	81	81	3.8
681 Drug Stores	0	253	253	5.1	0	348	348	7.7
691 Book and Stationery Stores	0	68	68	3.1	0	60	60	1.6
692 Florists Shops	0	97	97	3.6	0	112	112	4.1
694 Jewellery Stores	0	18	18	0.5	0	15	15	0.8
695 Watch and Jewellery Repair Shops	0	2	2	0.0	0	3	3	0.0
696 Liquor Wine and Beer Stores	0	303	303	8.8	0	323	323	6.5
697 Tobacconists	0	20	20	0.3	0	32	32	1.1
699 Retail Stores NES	0	1,002	1,002	30.2	0	1,101	1,101	30.5
02 Retail Trade	*6*	*16,848*	*16,854*	*462.2*	*5*	*18,040*	*18,045*	*504.4*
08 Trade	**11**	**26,457**	**26,468**	**764.8**	**15**	**28,340**	**28,355**	**822.7**
701 Banks and Other Deposit Accepting Establishments	0	205	205	9.2	0	182	182	5.5
703 Other Credit Agencies	0	7	7	0.1	0	1	1	0.0
705 Security Brokers and Dealers Including Exchange	0	1	1	0.0	0	1	1	0.0
707 Investment and Holdings Companies	1	329	330	7.8	0	286	286	12.6
01 Finance Industries	*1*	*542*	*543*	*17.1*	*0*	*470*	*470*	*18.0*
721 Insurance Carriers	0	30	30	0.6	0	42	42	0.5
02 Insurance Carriers	*0*	*30*	*30*	*0.6*	*0*	*42*	*42*	*0.5*
735 Insurance and Real Estate Agencies	0	55	55	2.4	0	55	55	1.6
737 Real Estate Operators	2	886	888	44.9	0	956	956	41.9
03 Insurance Agencies and Real Estate Industries	*2*	*941*	*943*	*47.3*	*0*	*1,011*	*1,011*	*43.5*
09 Finance, Insurance and Real Estate	**3**	**1,513**	**1,516**	**65.0**	**0**	**1,523**	**1,523**	**62.0**

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
801 Kindergartens and Nursery Schools	0	109	109	1.6	0	118	118	2.5
802 Elementary and Secondary Schools	0	1,610	1,610	34.8	0	1,805	1,805	42.8
803 Schools of Art and of the Performing Arts	0	1	1	0.2	0	1	1	0.0
804 Vocational Centres Trade Schools and Business	0	55	55	1.8	0	102	102	0.8
805 Post Secondary Non University Educational Institutions	0	291	291	6.3	0	424	424	5.6
806 Universities and Colleges	0	615	615	12.3	0	675	675	16.6
807 Libraries Museums and Other Repositories	0	80	80	1.4	0	65	65	1.6
809 Education and Related Services NES	0	19	19	0.2	0	41	41	1.2
01 Education and Related Services	*0*	*2,780*	*2,780*	*58.5*	*0*	*3,231*	*3,231*	*71.1*
821 Hospitals	1	5,116	5,117	154.9	0	5,103	5,103	167.4
822 Related Health Care Institutions	0	1,295	1,295	46.0	0	1,306	1,306	54.7
823 Offices of Physicians and Surgeons	0	63	63	3.2	0	37	37	1.2
824 Offices of Paramedical Personnel Practitioners	0	50	50	1.2	0	52	52	2.3
825 Offices of Dentists	0	4	4	0.1	0	4	4	0.0
826 Diagnostic and Therapeutic Services NES	0	146	146	5.9	0	172	172	4.5
827 Miscellaneous Health Services	0	110	110	3.1	0	142	142	7.3
828 Welfare Organizations	0	1,995	1,995	67.0	0	2,878	2,878	74.0
02 Health and Welfare Services	*1*	*8,779*	*8,780*	*281.4*	*0*	*9,194*	*9,194*	*311.4*
831 Religious Organizations	0	58	58	1.8	0	70	70	4.6
03 Religious Organizations	*0*	*58*	*58*	*1.8*	*0*	*70*	*70*	*4.6*
841 Motion Picture Theatres	1	35	36	0.7	0	36	36	1.1
842 Motion Picture Production and Distribution	0	29	29	0.7	0	34	34	1.1
843 Bowling Alleys and Billiard Parlours	0	38	38	0.7	0	32	32	1.7
844 Golf Clubs and Country Clubs	0	171	171	4.7	1	162	163	3.7
845 Theatrical and Other Staged Entertainment Services	0	19	19	0.6	0	17	17	0.3
849 Miscellaneous Amusement and Recreation Services	0	371	371	8.9	0	413	413	7.8
04 Amusement and Recreation Services	*1*	*663*	*664*	*16.1*	*1*	*694*	*695*	*15.8*
851 Employment Agencies and Personnel Suppliers	0	751	751	20.3	0	933	933	27.3
853 Computer Services	0	29	29	0.5	0	47	47	0.7
855 Security and Investigation Services	1	868	869	26.8	0	1,089	1,089	31.0
861 Offices of Accountants	0	38	38	1.4	1	43	44	2.0

(continued)

APPENDIX H *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
862 Advertising Services	0	81	81	1.5	0	82	82	1.9
863 Offices of Architects	0	10	10	0.1	0	5	5	0.2
864 Engineering and Scientific Services	1	360	361	10.2	2	391	393	11.5
866 Offices of Lawyers and Notaries	0	4	4	0.0	0	2	2	0.0
867 Offices of Management and Business Consultants	0	110	110	1.4	0	167	167	4.1
869 Miscellaneous Services to Business Management	1	756	757	24.0	0	903	903	31.2
05 Services to Business Management	*3*	*3,007*	*3,010*	*86.3*	*3*	*3,662*	*3,665*	*110.0*
871 Shoe Repair Shops	0	49	49	3.4	0	64	64	2.2
872 Barber and Beauty Shops	0	18	18	1.1	0	14	14	0.4
873 Private Households	0	55	55	1.5	0	103	103	4.0
874 Laundries Cleaners and Pressers Except Self Serve	0	482	482	21.4	0	480	480	24.3
876 Self Service Laundries and Dry Cleaners	0	13	13	0.5	0	18	18	0.3
877 Funeral Services	0	85	85	2.5	0	69	69	2.9
879 Miscellaneous Personal Services	0	102	102	3.6	0	97	97	4.9
06 Personal Services	*0*	*804*	*804*	*34.0*	*0*	*845*	*845*	*38.8*
881 Hotels and Motels	1	1,810	1,811	59.0	0	1,909	1,909	56.2
883 Lodging Houses and Residential Clubs	0	13	13	0.4	0	16	16	0.8
884 Camping Grounds and Trailer Parks	0	42	42	2.8	0	46	46	1.6
886 Restaurants Caterers and Taverns	0	6,640	6,640	167.6	1	7,121	7,122	177.7
07 Accommodation and Food Services	*1*	*8,505*	*8,506*	*229.8*	*1*	*9,092*	*9,093*	*236.3*
891 Labour Organizations and Trade Associations	0	187	187	5.5	0	210	210	8.4
893 Photographic Services NES	0	44	44	1.4	0	66	66	1.7
894 Automobile and Truck Rental	1	126	127	3.2	1	180	181	4.8
895 Machinery and Equipment Rental	0	268	268	6.6	0	315	315	12.2
896 Blacksmithing and Welding Shops	0	262	262	8.3	0	314	314	10.9
897 Miscellaneous Repair Shops	1	202	203	4.9	0	190	190	6.1
898 Services to Buildings and Dwellings	0	1,268	1,268	57.4	1	1,423	1,424	79.2
899 Miscellaneous Services NES	0	421	421	15.0	0	405	405	14.4
08 Miscellaneous Services	*2*	*2,778*	*2,780*	*102.3*	*2*	*3,103*	*3,105*	*137.8*
10 Community, Business and Personal Service Industries	**8**	**27,374**	**27,382**	**810.2**	**7**	**29,891**	**29,898**	**925.7**

(continued)

APPENDIX H *(continued)*

	1985				1986			
	Number of Claims			Days of Temporary	Number of Claims			Days of Temporary
INDUSTRY	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*
902 Defence Services	0	20	20	0.2	0	13	13	0.1
909 Other Federal Administration	0	18	18	1.2	0	44	44	1.0
01 Federal Administration	*0*	*38*	*38*	*1.4*	*0*	*57*	*57*	*1.1*
931 Provincial Administration	0	46	46	2.0	0	28	28	0.4
02 Provincial Administration	*0*	*46*	*46*	*2.0*	*0*	*28*	*28*	*0.4*
951 Local Administration	4	2,726	2,730	85.0	1	2,651	2,652	76.4
03 Local Administration	*4*	*2,726*	*2,730*	*85.0*	*1*	*2,651*	*2,652*	*76.4*
11 Public Administration and Defence	**4**	**2,810**	**2,814**	**88.3**	**1**	**2,646**	**2,647**	**77.8**
***Total for Schedule 1**	**131**	**159,748**	**159,879**	**5,742.0**	**137**	**171,694**	**171,831**	**6,238.9**

1 Days lost due to temporary total disability up to initial settlement for claims initially settled in year indicated. Totals may not add due to rounding.
2 Industry Classification: Standard Industrial Classification 1970.

Source: 1985 figures –Canadian Centre for Occupational Health and Safety – from WCB's Initial Settlement System.
1986 figures –Statistical Services, Workers' Compensation Board of Ontario.

APPENDIX I

Count of Fatal and Non-Fatal and Days of Temporary Total Disability[1] by SIC[2] for Disabling Injury Claims Initially Settled in 1985 – WCB Schedule II Employers

	1985				1986			
	Number of Claims			Days of Temporary	Number of Claims			Days of Temporary
INDUSTRY	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*	*Fatal*	*Non-Fatal*	*Total*	*Total Disability (000)*
295 Smelting and Refining	0	31	31	0.8	0	33	33	0.9
12 Primary Metal Industries	*0*	*31*	*31*	*0.8*	*0*	*33*	*33*	*0.9*
304 Metal Stamping Pressing and Coating Industry	0	12	12	0.5	0	5	5	0.1
13 Metal Fabricating Ind. (Except Machinery and Transportation)	*0*	*12*	*12*	*0.5*	*0*	*5*	*5*	*0.1*
05 Manufacturing Industries	**0**	**43**	**43**	**1.3**	**0**	**38**	**38**	**1.0**
421 Special Trade Contractors	0	2	2	0.0				
02 Special-Trade Contractors	*0*	*2*	*2*	*0.0*				
06 Construction Industry	**0**	**2**	**2**	**0.0**				
501 Air Transport	0	549	549	11.4	0	590	590	16.1
503 Railway Transport	3	1,634	1,637	68.6	2	1,602	1,604	83.2
504 Water Transport	0	275	275	18.8	0	135	135	12.5
505 Services Incidental to Water Transport	0	260	260	16.6	0	174	174	11.4
507 Other Truck Transport	0	6	6	0.8	0	5	5	1.0
509 Urban Transit Systems	1	678	679	18.0	0	712	712	20.9
516 Highway and Bridge Maintenance	0	3	3	0.0	0	2	2	0.0
517 Miscellaneous Services Incidental to Transportation	0	11	11	0.2	0	12	12	0.3
519 Other Transportation	0	95	95	1.5	0	134	134	5.4
01 Transportation	*4*	*3,511*	*3,515*	*136.0*	*2*	*3,366*	*3,368*	*150.7*
543 Radio and Television Broadcasting	0	39	39	0.8	0	53	53	0.8
544 Telephone Systems	0	372	372	4.2	0	259	259	6.1
545 Telegraph and Cable Systems	0	32	32	0.8	0	26	26	0.9
548 Post Office	0	3,278	3,278	58.7	0	3,054	3,054	60.0
03 Communications	*0*	*3,721*	*3,721*	*64.6*	*0*	*3,392*	*3,392*	*67.7*

(continued)

APPENDIX I *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
572 Electric Power	0	1,073	1,073	39.3	0	1,188	1,188	51.0
576 Water Systems	0	7	7	0.1	0	7	7	0.1
04 Electric Power, Gas and Water Utilities	*0*	*1,080*	*1,080*	*39.4*	*0*	*1,195*	*1,195*	*51.2*
07 Transportation, Communication and Other Utilities	**4**	**8,312**	**8,316**	**239.9**	**2**	**7,953**	**7,955**	**269.6**
696 Liquor Wine and Beer Stores	0	247	247	6.7	0	364	364	10.4
02 Retail Trade	*0*	*247*	*247*	*6.7*	*0*	*364*	*364*	*10.4*
08 Trade	**0**	**247**	**247**	**6.7**	**0**	**364**	**364**	**10.4**
703 Other Credit Agencies	0	21	21	0.1	0	15	15	0.2
01 Finance Industries	*0*	*21*	*21*	*0.1*	*0*	*15*	*15*	*0.2*
721 Insurance Carriers	0	20	20	0.7	0	18	18	0.2
02 Insurance Carriers	*0*	*20*	*20*	*0.7*	*0*	*18*	*18*	*0.2*
737 Real Estate Operators	0	70	70	2.5	0	62	62	2.3
03 Insurance Agencies and Real Estate Industries	*0*	*70*	*70*	*2.5*	*0*	*62*	*62*	*2.3*
09 Finance, Insurance and Real Estate	**0**	**111**	**111**	**3.3**	**0**	**95**	**95**	**2.8**
802 Elementary and Secondary Schools	0	1,680	1,680	32.3	0	1,442	1,442	35.4
807 Libraries, Museums and Other Repositories					0	1	1	0.0
01 Education and Related Services	*0*	*1,680*	*1,680*	*32.3*	*0*	*1,443*	*1,443*	*35.5*
821 Hospitals	0	928	928	24.6	0	945	945	20.9
828 Welfare Organizations	0	73	73	1.9	0	68	68	2.7
02 Health and Welfare Services	*0*	*1,001*	*1,001*	*26.5*	*0*	*1,013*	*1,013*	*23.6*
849 Miscellaneous Amusement and Recreation Services	0	60	60	1.4	0	66	66	2.8
04 Amusement and Recreation Services	*0*	*60*	*60*	*1.4*	*0*	*66*	*66*	*2.8*
866 Offices of Lawyers and Notaries	0	1	1	0.0	0	2	2	0.0
867 Offices of Management and Business Consultant	0	5	5	0.0	0	4	4	0.1

(continued)

APPENDIX I *(continued)*

INDUSTRY	1985 Number of Claims Fatal	1985 Number of Claims Non-Fatal	1985 Number of Claims Total	1985 Days of Temporary Total Disability (000)	1986 Number of Claims Fatal	1986 Number of Claims Non-Fatal	1986 Number of Claims Total	1986 Days of Temporary Total Disability (000)
869 Miscellaneous Services to Business Management	0	1	1	0.0	0	3	3	0.0
05 Services to Business Management	*0*	*7*	*7*	*0.0*	*0*	*9*	*9*	*0.1*
899 Miscellaneous Services NES	0	3	3	0.1	0	1	1	0.0
08 Miscellaneous Services	*0*	*3*	*3*	*0.1*	*0*	*1*	*1*	*0.0*
10 Community, Business and Personal Service Industries	**0**	**2,751**	**2,751**	**60.3**	**0**	**2,532**	**2,532**	**62.0**
902 Defence Services	2	617	619	15.7	1	648	649	18.0
909 Other Federal Administration	1	1,223	1,224	20.6	3	1,396	1,399	28.0
01 Federal Administration	*3*	*1,840*	*1,843*	*36.3*	*4*	*2,044*	*2,048*	*46.0*
931 Provincial Administration	3	3,302	3,305	78.6	4	3,005	3,009	71.8
02 Provincial Administration	*3*	*3,302*	*3,305*	*78.6*	*4*	*3,005*	*3,009*	*71.8*
951 Local Administration	3	6,664	6,667	185.7	2	6,344	6,346	170.1
03 Local Administration	*3*	*6,664*	*6,667*	*185.7*	*2*	*6,344*	*6,346*	*170.1*
991 Other Government Offices					0	1	1	0.0
04 Other Government Offices					*0*	*1*	*1*	*0.0*
11 Public Administration and Defense	**9**	**11,806**	**11,815**	**300.7**	**10**	**11,394**	**11,404**	**287.9**
***Total for Schedule 2**	**13**	**23,272**	**23,285**	**612.2**	**12**	**22,376**	**22,388**	**633.7**

1 Days lost due to temporary total disability up to initial settlement for claims initially settled in year indicated.
2 Industry Classification: Standard Industrial Classification 1970.

Source: 1985 figures – Canadian Centre for Occupational Health and Safety – from WCB's Initial Settlement System.
1986 figures – Statistical Services, Workers' Compensation Board of Ontario, May 1987.